PAPER TRADE
JOURNAL

Effect of Bleaching Cotton Linters Pulp . . . p. 16

July 3, 1953

Hot water for pulp washing

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Recover heat from steam released in the digester blow tank with a Swenson Surface Condenser! Its operation is automatic and synchronized with blowing cycles. You'll get *clean* hot water at the desired temperature for pulp washing.

Let a Swenson Engineer help you arrange a condenser system to meet your specific needs!

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SINCE 1889

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WHITING
Corporation

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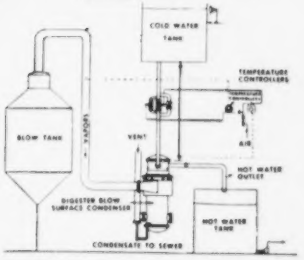
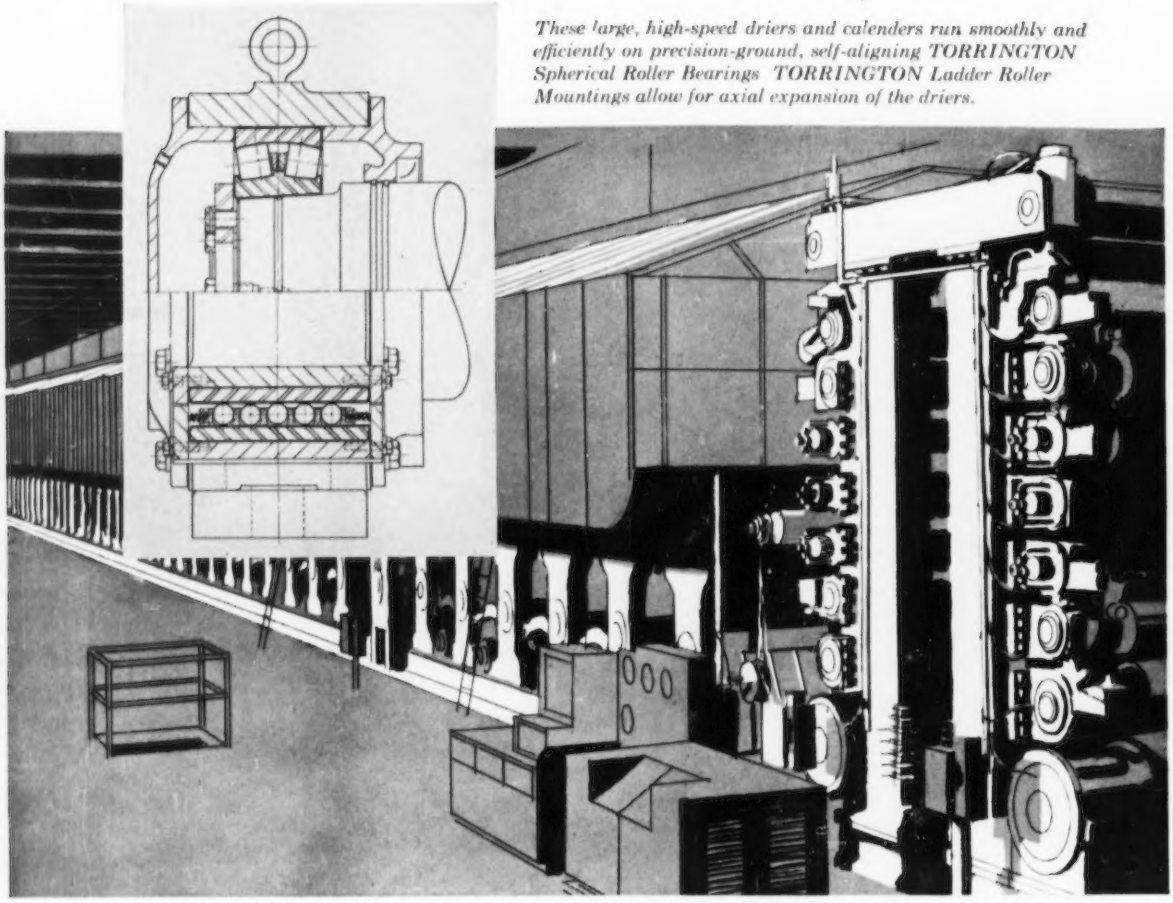
HE WILL RECOMMEND THE *RIGHT* EQUIPMENT



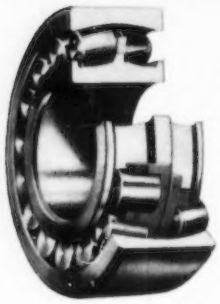
Flow diagram shows general arrangement of Blow Condenser System

TORRINGTON BEARINGS AT WORK



These large, high-speed driers and calenders run smoothly and efficiently on precision-ground, self-aligning TORRINGTON Spherical Roller Bearings TORRINGTON Ladder Roller Mountings allow for axial expansion of the driers.

Speed production



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TORRINGTON Spherical Roller Bearings are inherently self-aligning—for smooth, continuous service at high sustained speeds and even under shock loads. Contact surfaces are precision-ground from the finest of heat-treated bearing steels—for minimum friction, maximum bearing life.

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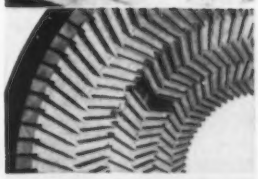
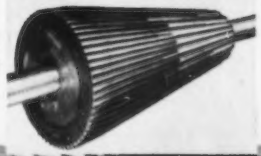
Every part precison machined to close tolerances under rigid control

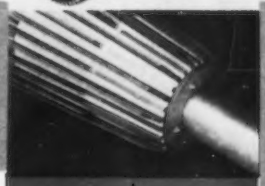
Box pattern base for strength and to minimize vibration



Bolton exclusive shell filling riveted for extra strength

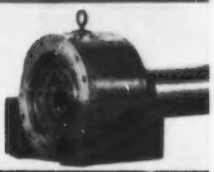


Bolton Wedgeless Plug of cast steel with stainless jacket

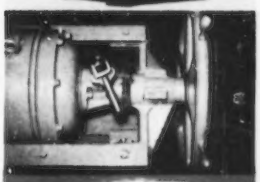


Same plug slots take various filling sizes

Plug shaft positively centered



Sleeve mounted Timken bearings for easy removal



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Published every Friday by LOCKWOOD TRADE JOURNAL CO., INC., 15 West Forty-Seventh Street, New York 36. Phone: PLAZA 7-2370.

JOHN C. W. EVANS
EDITOR

D. BRUCE OTIS, JR.
ASSOCIATE EDITOR

E. P. NUTTALL
ASSOCIATE EDITOR

R. E. THUEMMES
MANAGING EDITOR

Entered as Second Class Matter at the post office at East Stroudsburg, Pa., under Act of Congress of March 3, 1879. Publication Office at Lockwood Trade Journal Co., Inc., 34 North Crystal St., East Stroudsburg, Pa. Printed in U.S.A.

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Paper established Feb. 17, 1899, combined with *Paper Trade Journal* Nov. 16, 1899. *Paper* established Sept. 21, 1910, combined with *Paper Trade Journal* February 19, 1926.
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Paper Trade Journal is indexed in Industrial Arts Index and Engineering Index. Also publisher of *Lockwood's* Annual *Directory of the Paper and Allied Trades.*

REMEMBER THESE DATES

OCT. 6-7: Fibrebox Assn., Fall Meeting, Waldorf-Astoria Hotel, New York, N.Y.

OCT. 8-9: Tenth Fibrous Agricultural Residues Conference, Trenton, Ont., Canada.

OCT. 15-16: Third Corrugated Containers Conference, Statler Hotel, New York, N.Y.

OCT. 26-29: TAPPI Engineering Division, Sheraton-Mount Royal Hotel, Montreal, Que., Canada.

NOV. 4-5-6: National Paperboard Assn., Annual Meeting, Waldorf-Astoria Hotel, New York, N.Y.

NOV. 18-20: 7th TAPPI Alkali Pulping Conference, Rice Hotel, Houston, Texas.

DEC. 13-16: American Institute of Chemical Engineers, Annual Meeting, Hotel Jefferson, St. Louis, Mo.

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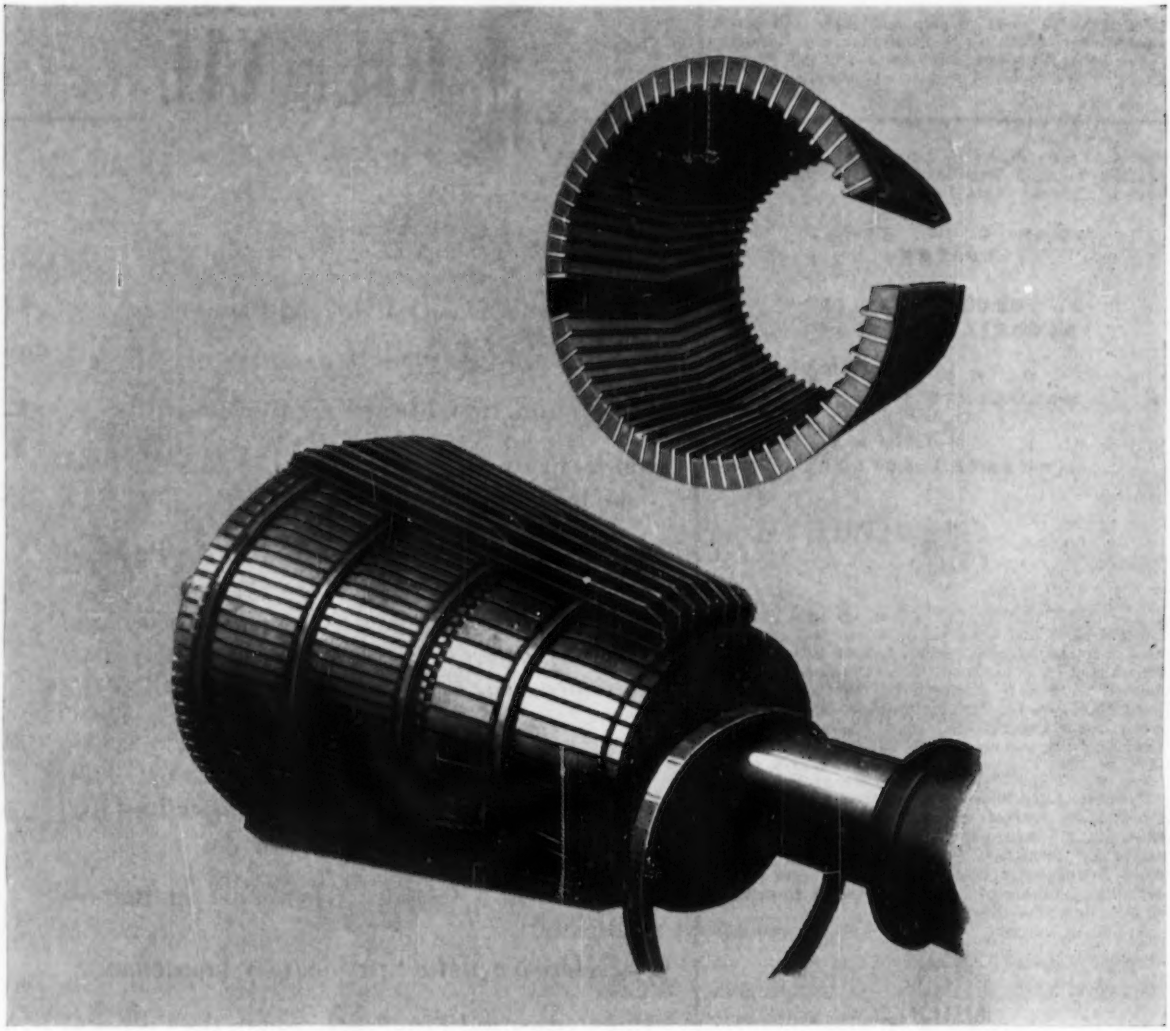
GEORGE E. LOCKWOOD, President and Treasurer — Phone: Plaza 7-2370 — ARTHUR E. GORDON, Vice-President — FREDERICK E. WINKLER, Secretary



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Way back when today's Superintendents were just broke hustlers Bulldog filling was the big sensation in the filling field. It was the first preassembled filling ever built. And because Bulldog is the most rugged shell filling that ever went into a jordan, it still leads.

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BLACK-CLAWSON

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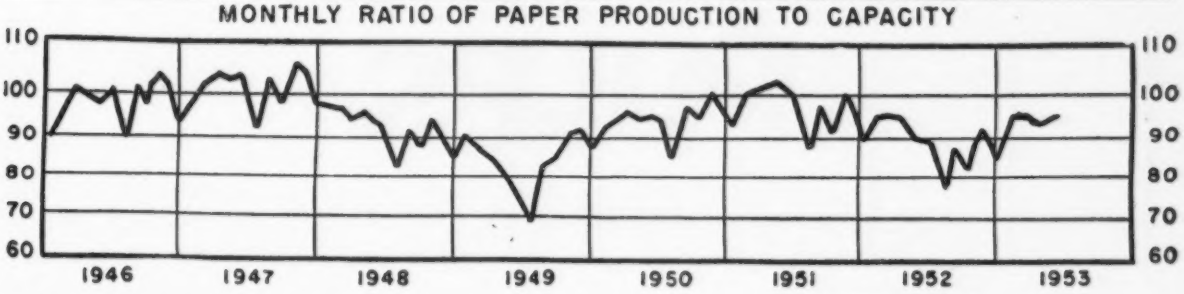
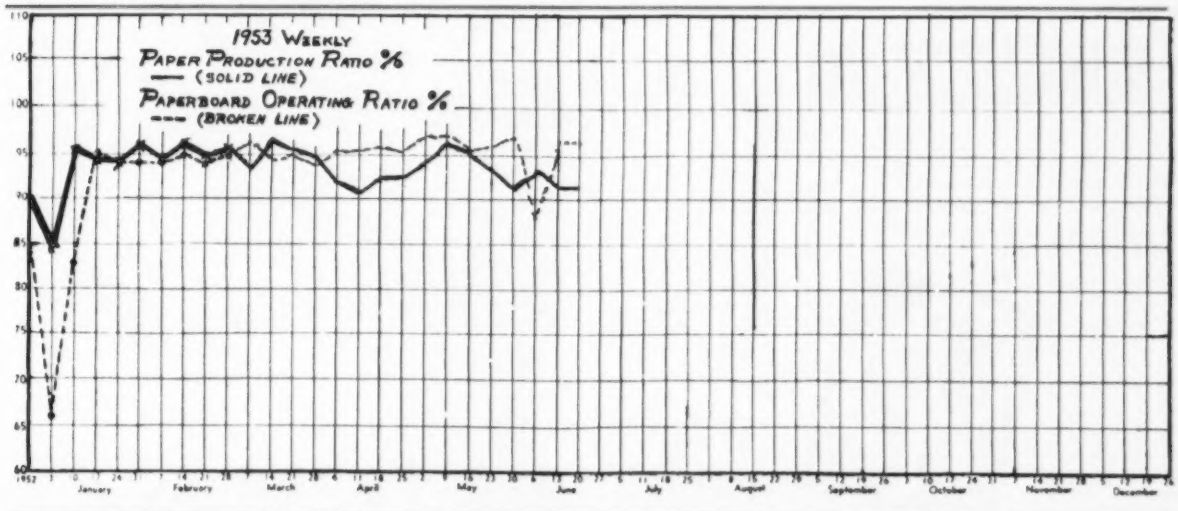
OUR BUSINESS



Brief of Important Figures

Source	Production	WEEK ENDING June 20, '53	May 23, '53	June 21, '52
APPA	Paper Production Percent Capacity[3]	93.8	93.9	88.6
NPA	Paperboard Operating Ratio Percent Inch Hours	98	96	85
		Apr. 1953	**Mar. 1953x**	**Apr. 1952**
APPA	Paper Production[3] (Except Newsprint and Building Papers) ....Tons	872,000	882,601	853,000
	New Orders ....Tons	859,000	920,783	797,000
	Unfilled Orders ....Tons	854,225	865,259	812,806
	Shipments ....Tons	870,000	876,332	844,000
		May 1953	**Apr. 1953**	**May 1952**
NPA	Paperboard Production ....Tons	988,393	988,205	806,196
	New Orders ....Tons	926,251	972,711	751,565
	Unfilled Orders ....Tons	459,811	539,033	379,989
	Our Customers Activities Index[1]	**Latest Mo.°**	**Previous Mo.°**	**Year Ago°**
FRS	Durable Mfg. Index	326	326	277
	Nondurable Mfg. Index	196	197	180
	Printing and Publishing Index	186	187	180
ODC	Magazine Advg.-Printer's Ink Index	426	421	404
	Prices Index			
BLS	Consumers Price Index[4]	113.7	113.6	112.9
	Wholesale all Commodities[4]	109.4	110.0	118.8
	Wholesale Pulp, Paper[4] and Allied Products	115.3	115.1	117.4
	Purchasing Power of Dollar, Consumers Prices[4]	88.0	88.0	88.6
	General Activity Index			
FRS	Mfg. Production-Worker Payroll[4]	149.8	152.1	129.1
	Unemployment Compensation Initial Claims (M)	888	831	1,109



[3] New 6-7 day basis.
[4] New Index 1947–1949 = 100.

° For details see APPA Monthly Statistical Summary—April 1953 Estimated Figures.
° Latest Month Available on Request.
x Revised Figures. N.A.: Not Available.

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PULPS

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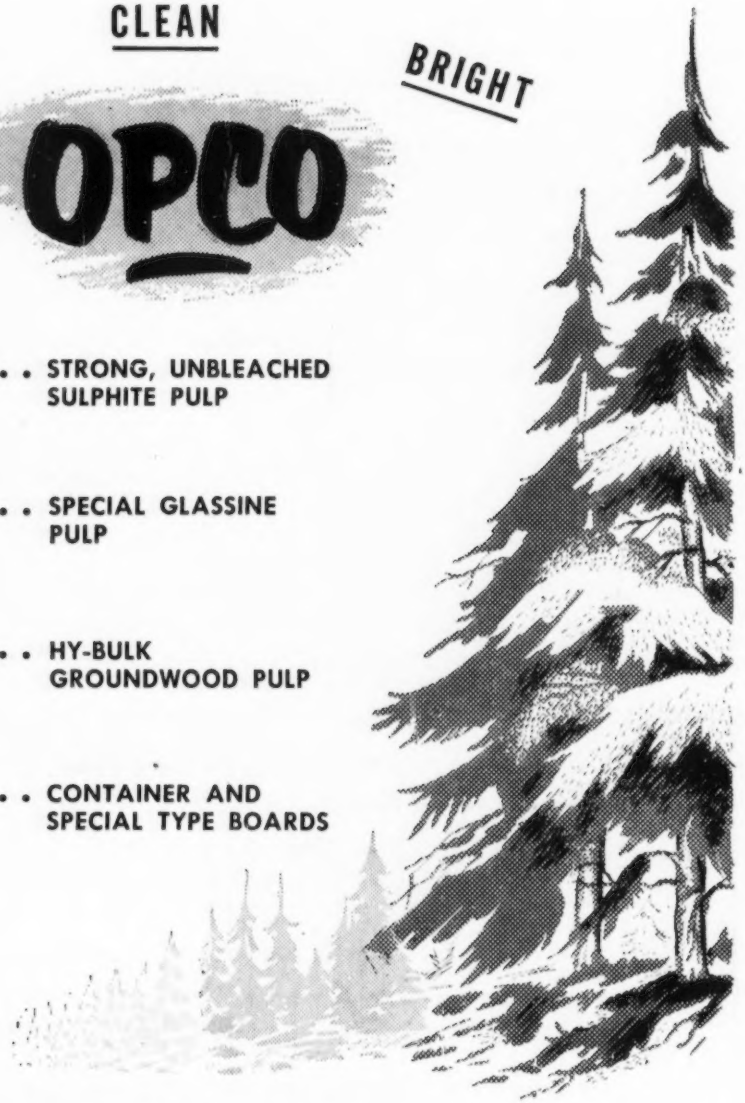

INQUIRIES INVITED

THE **ONTARIO PAPER CO.** LIMITED

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TRENDS
PAPER TRADE JOURNAL

Papermaking Chemicals Are Now Higher in Price

An upswing in the cost of papermaking chemicals will be felt by the paper and board industries of the U.S. and Canada on July 1. Higher wages for labor, increased freight rates, electric power, etc., are held responsible for the unavoidable price boosts.

A general rise in chlorine ..... has developed since the original change in selling prices was announced by a major producer a few weeks ago. Followed early by another plant, the advance is now believed to be general to all producers.

Amounting to 23 cents a hundred pounds on single-unit tankcars, the July 1 rise lifts the price from $2.70 to $2.93. Multiple-unit tankcars at the rate of three cars per year to one destination are advanced from $3.20 to $4 per hundreds pounds at works; two cars from $3.80 to $5.10.

Also partaking of the upswing ..... is solid and flaked forms of caustic soda. Liquid grades are exempted.

Announced to become effective July 1, the increases have been introduced by all producers and amount to 35 cents a hundred pounds on 76 percent solid, flaked and ground forms.

Compared against June prices, 76 percent solid in drums at $3.35 a hundredweight becomes $3.70; flaked and ground at $3.75 becomes $4.10 in 400-lb drums.

Announced by one or more producers earlier in the season and then rescinded, the price rise is reported to cover increasing costs of labor, containers and items of freight.

Aluminum sulphate also partakes ..... of the rise in prices. Effective July 1, contract prices will be advanced the 20-cent rise already in effect in the spot market.

Commercial grades in bags are advanced from $1.65 to $1.85 per hundred pounds, carlots at works. Iron-free is lifted from $3.25 to $3.55.

The salt cake price rise ..... of $2.00 a ton brings the new figure to $19, carlots at works.

Advances in sulphur prices ..... already announced amount to $3.50 per long ton. In most instances, the new contract prices become effective on July 1, also.

Papermaking grades of sodium silicate also are advanced on July 1. For the 40 degree Beaumé in tank-cars, the rise is 10 cents a hundredweight; for 42 degree, waterwhite, 15 cents.

Canadian rises average 7% ..... to manufacturers of pulp and paper and other users of heavy chemicals, it is reported. Adding to an earlier rise of 20 percent in the cost of elemental sulphur, the increases in sulphuric acid and chlorine prices now combine with higher wages and freight rates to confront newsprint, pulp and paper producers.

High Level Casein Demand Develops From Twin Factors

High level demand for imported casein is coming from the industry's coating mills as a result of increased brush-coating operations and *right* casein price. Seen as twin factors which do not influence each other, both are contributing to the steady trading and consumption of this coating material.

Priced at 16 cents duty paid New York for the Argentine product, or at 22 cents for the prime New Zealand quality, paper-coater purchases are stimulated on the one hand by low price, on the other by increased demand for their own product, developed by stepped-up advertising schedules.

For other sources of supply ..... small offerings only have been made to this market. High-quality Dutch is available in small quantities at 22½ cents. Small parcels of French are priced about 18½ cents, duty paid. No Danish is being offered here. Casein from Canada is reported to be plentiful but unreliable as to uniformity.

Stocks in the Argentine ..... continue to be heavy. Pricewise they are firmly held by Peron Government controls and could rise, should U.S. industry demand rise appreciably. At the Buenos Aires f.o.b. selling price of around 12 cents, the only direction is upwards, it is said.

Triangular trade deals halted ..... by the Argentine government through a new trade agreement with Sweden are expected to lift the spot U.S. market for casein. By the deal which runs for one year, Sweden has agreed to end the sale of its pesos for U.S. dollars and to provide merchandise for shipments to Argentina of 50 million krona each way. The Argentine is to export casein, fodder, hides, skins, wool and quebracho, while the Swedish list includes pulp (13 million krona), newsprint and other paper (8 million), iron and steel products (15 million krona).

A halt in the three-way deal in pesos contrives to bring to an end the flow of Argentine casein and other goods which reach the U.S. at close to 20 percent discounts.

See Pulp Market Upturn In Argentine and Brazilian Deals

A revival of world market buying is seen in the recent trade agreements made by Argentina with Sweden and in earlier ones with Finland and Austria.

Brazil also has concluded an agreement with Finland which includes exports to the value of $10 million of newsprint; $1 million for other papers and board; $8½ million for paper pulp; dissolving pulp $1.4 million, during the year beginning July 1, 1953.

When it is considered that 1952 figures show total Finnish pulp exports to Brazil of some 15,000 metric tons, the new quota for 60 to 75,000 tons—depending on the qualities and grades—is viewed either as a revival of buying or a diversion from the quantities bought during 1952 from Canada and the U.S. Inasmuch as Brazil is held by the Swedes to be their traditional market, they do not expect to lose any portion of the 50 to 75,000 tons they regularly sell there.

A resumption of Argentine buying ..... is involved in her first announcement that import licenses to cover 65,000 tons of cellulose had been released. It is reported here that these covered deals with Finland and with Austria.

The Swedish trade agreement just publicized includes 18 to 20,000 metric tons of cellulose, compared with 7,500 in 1952, with 60,000 metric tons in 1951, and with 35,000 in 1950.

It is being assumed that because Finland and Austria do not produce any bleached kraft, Argentina's purchases must come from Swedish mills. Other grades may be slightly affected.

Market students interviewed here ..... are disposed to consider these items of news as signs that world markets are recovering from over-buying in 1951. Comparing the quantities involved in these trade agreements with the volume of pulp available here and overseas, they do not see any shortage developing, however.

Stiffening of bleached kraft prices .... appears to be the one sure result. Already the strongest and most wanted of the Scandinavian pulps, the price of this grade could strengthen by the next quarter, it is believed. Other grades will be firmer at third-quarter levels, which are unchanged from the second-quarter.

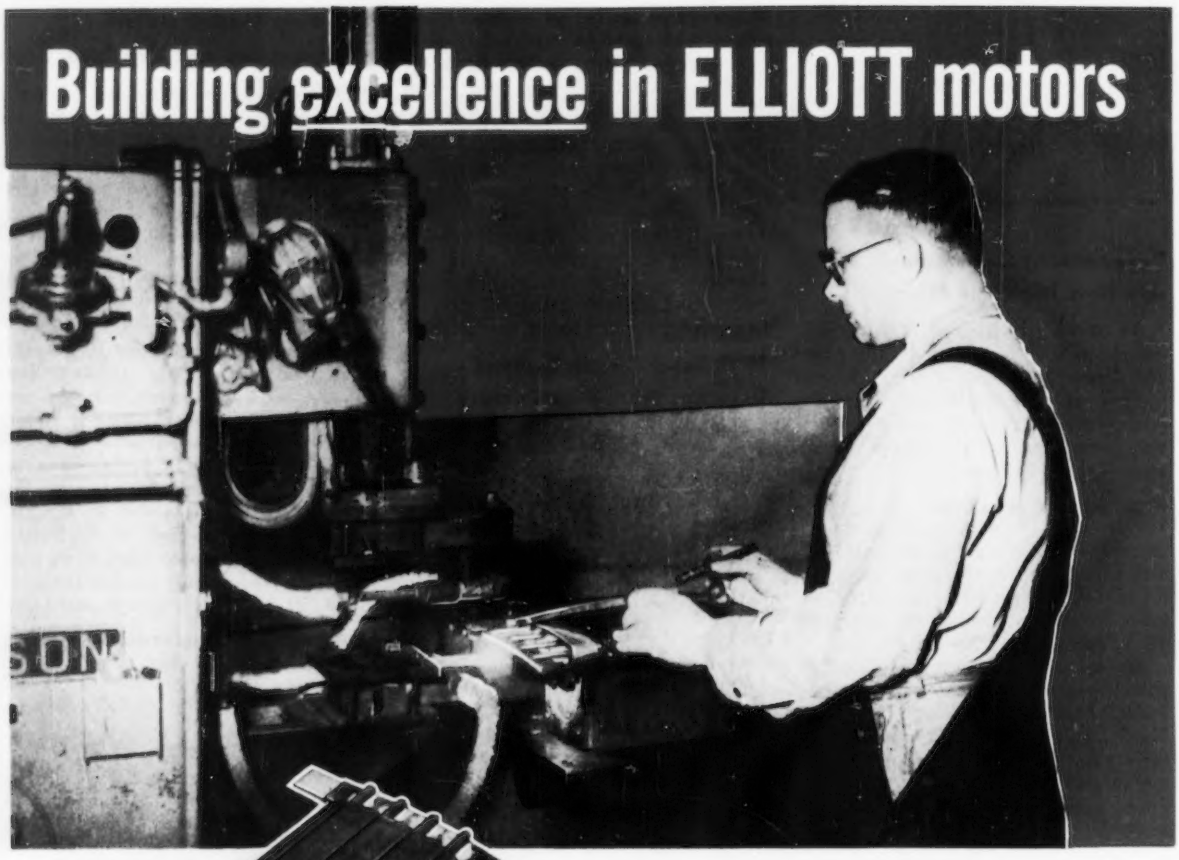
—F.P.N.

Paperboard Production (Tons)*

	June 20 1953	June 13 1953	June 21 1952
Production	258,844	254,689	210,043
New Orders	210,031	217,725	191,104
Unfilled Orders	509,322	560,897	374,791
% of Activity	98	98	85

* Source: National Paperboard Assn.

Building excellence in ELLIOTT motors



Silver brazing for permanence!

Low-speed synchronous motor with split rotor and collector-ring enclosure.

● Damper bars of Elliott synchronous motors are individually silver brazed to broad end-ring segments by the resistance brazing method. The brazing alloy is fed in and flowed along the length of both sides of the joint, forming a long, thick low-resistance, high-strength fillet. Graphite electrodes clamp the bar to the end-ring until the silver brazing alloy solidifies. The special jig shown accurately locates the end-ring segment with relation to the damper bars and pole-piece.

For data on the complete line of Elliott large motors, consult your local Elliott engineer or write Elliott Company, Ridgway, Pa.

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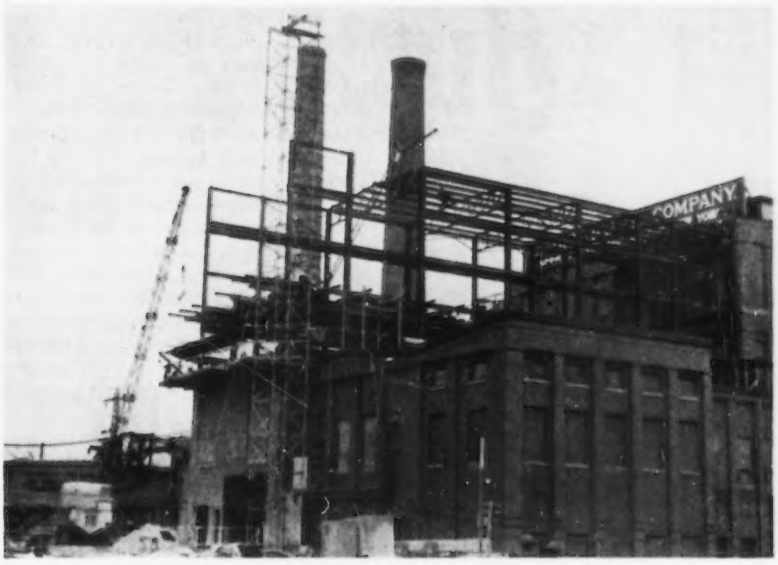
FOR MOTORS 1-200 HP: CROCKER WHEELER DIV. AMPERE, N. J.

R3-7

WEEK OF PAPER TRADE JOURNAL JULY 3, 1953



View of progress made at Oxford Paper Co.'s new hardwood kraft bleach plant. Completion of this addition is scheduled for November. Already the brick and glass block side walls are up and it is expected that the outer shell of the building will be finished early this summer. After the building is erected there will be installed a four stage pulp bleaching system consisting of a chlorination tower, a high density caustic stage tower, and two towers for hypochlorite stages at high density. The chlorination tower will be 90 ft. high and 16 ft. in diameter. In addition to bleaching facilities, the new plant will house a modern testing laboratory and modern electronic equipment for control of all steps in the bleaching process. The new bleach plant will have a 300 ton daily capacity.

Jack Arnold Sues Lesavoy and Paper Corp.

Jack J. Arnold, president of the bankrupt Paper Corp. of America, announces that he has severed all relationship with I. Lawrence Lesavoy and his associated companies.

At the same time, Mr. Arnold let it be known that he has filed opposing motions in the Federal Court against Mr. Lesavoy and Paper Corp. in their conduct of the affairs of Paper Corp. of America. A voluntary bankruptcy proceeding for corporation reorganization was filed by Paper Corp. in the Federal Court earlier in the month.

Reports that the company's mill at Cheboygan, Mich. had been sold are denied by Mr. Arnold and by the Lesavoy counsel.

Mr. Arnold has opened offices at 60 East 42nd street, New York 17, N.Y., Murray Hill 2-3888, where he will become engaged in the pulp and paper business.

Associated with him is Irving Beckman, formerly secretary of Paper Corp. who also has divorced himself from the Lesavoy industries.

Judgment Against America Tissue Postponed

The show-cause hearing involving the claims of employes of American Tissue Mills, Inc., Holyoke, for back wages amounting to $10,000, was continued to July 2. Clerk of Courts Gregory Scanlon, Holyoke, said if the issue was not resolved by July 2, he would issue a warrant against Homer Sinclair, ex-president and ex-treasurer of the company.

Clerk Scanlon said the warrant was being delayed in order to give labor officials representing the employes a chance to consult with their superiors in Boston as to whether arrangements could be made with the company to pay the wages. American Tissue Mills is in bankruptcy and currently operating on a skeleton force.

Fred Boyce Dies

With regret we report the death of Fred C. Boyce, aged 84. He died June 28 at Milwaukee Hospital. As founder and first president of the American Pulp & Paper Mill Supts. Assn., he became a national figure in the industry. A trustee of APPMSA since 1921, three weeks ago he became Trustee-Emeritus. In 1951, APPMSA established an annual award in honor of Fred Boyce.

Shortly before his death, Mr. Boyce was elected chairman of the board of D. J. Murray Mfg. Co., Wausau, Wis., after serving as its president since 1932. His earlier career as a papermaker began in New York State, and he subsequently held supervisory jobs in Falls Mfg. Co., Oconto, Wis. and the Wausau Paper Mills Co., Brokaw, Wis.

Always active in civic affairs, he also served with great energy in the national activities of the Methodist Church, the YMCA, the Masons, and the U.S. Chamber of Commerce.

Chatham Tissue Moves

Chatham Tissue Corp., formerly of Chatham, N. J., has completed its new manufacturing plant at Union, N. J., and is now operating from it. The new plant, containing 20,000 square feet of floor space has been designed specifically for the manufacture of toilet tissue.

Located on a three acre tract adjoining the Rahway Valley Railroad, Chatham's new plant is completely equipped with new machinery.

Chatham Tissue Corp. manufactures private label facial quality toilet tissue for leading department stores throughout the country.

Further Alaskan Plans Announced by Japanese

Following last week's report that the Japanese mission to Alaska had filed recommendations with the Alaska Development Board for establishing the long-planned lumber & pulp mill, further details of the plan have been received.

Nineteen paper and pulp makers, 13 rayon producers, and two timber companies have been invited to join a syndicate to establish a mill in the Sitka district. According to the proposal submitted by Takuji Oshima of the Japanese Forest Resources Council, the Japanese syndicate would incorporate as the Alaska Pulp Co. and become the holding company for the American firm, which will operate the mill under the name of the Sitka Lumber & Pulp Co.

Under the plan, a capital investment of $15 million is specified, 13 million of which will be Japanese. A combination timber and chip mill is to be built during the first year of the plan. Fifty per cent of the timber and all of the chips will be shipped to Japan beginning the second year. A pulp mill will be constructed during the first four years, and its output will also be shipped to Japan beginning the fifth year.

The projected mother company will be capitalized at 1500 million yen, and an additional 3830 million yen will be borrowed from the Export-Import Bank of Japan. Investment of the funds in the operating plant will be extended over the scheduled four-year construction period.

Estimated annual output of the Sitka mill will be 300,000 koku in lumber (one koku equals about 4.96 bushels) and about 200,000 koku in chips, as well as 50,000 tons each of dissolving pulp and paper-grade pulp.

Winners of Rayonier Awards

Winners of the recently announced $2500 fellowship from Rayonier Inc. and a $1000 undergraduate scholarship from the Rayonier Foundation have been announced by the University of Washington.

The fellowship winner is Jovan Moacanin, a graduate student in chemical engineering, engaged in research in the fields of cellulose and silvichemicals. Born in Yugoslavia 27 years ago, Moacanin has been an American citizen for the past year. He is married and has one child.

The scholarship winner is Kenji Yoshinaka, who has the highest grade point average in the electrical engineering junior class. He is 20 years old.

U. S. IMPORTS OF WOODPULP

Preliminary, April, 1953

Item	Country of Origin	Short Tons
Mechanical		
Unbldchd.	Canada	10,860
	Sweden	28
	Finland	2,100
		12,988
Screenings	Canada	325
Bldchd.	Canada	3,706
Chemical		
Sulfite, Unbldchd.	Canada	22,035
	Sweden	5,670
	Finland	2,472
	Norway	28
		30,205
Screenings	Canada	518
Sulfite, Bleached Rayon & Special Chem. Grades	Canada	21,523
Other	Canada	17,184
	Sweden	5,093
	Norway	6,933
	Finland	1,183
	Austria	1,832
		32,225
Sulfate, Unbldchd.	Canada	14,531
	Sweden	713
	Finland	1,900
		17,144
Sulfate Bldchd.	Canada	42,852
	Sweden	10,932
	Norway	50
	Austria	110
		53,944
Soda, Bldchd. and Unbldchd.	Canada	3,030
Totals, April	Canada	136,564
	Sweden	22,436
	Finland	7,655
	Norway	7,011
	Austria	1,942
		175,608

U. S. Capital Sought For New Burmese Mill

The government of the Union of Burma, for the first time, is inviting foreign capital, specifically U.S. capital, to buy not more than 50 per cent of the total share value of its proposed pulp and paper mill.

The mill will be erected about 15 miles north of Akyab in the Arakan Division of Burma. It will pulp bamboo fiber and produce about 30 tons per day of printing and writing papers and 70 tons of bleached pulp for export. Bids for design of the mill have already been received and are now being considered.

Power for the operation will be brought 60 miles from a new hydroelectric plant at Saingdin. The project was declared economically sound on the basis of survey reports from an American consulting firm, a Burmese forest research official, the technical staff of the Directorate of Industries, and other governmental departments.

Inquiries concerning the paper mill project should be directed to the Secretary, Paper Factory and Chemical Industries Board, 619 Merchant street, Rangoon, Burma.

Study European Utilization of Waste Liquor

To make sure that Wisconsin pulp and paper mills keep abreast of recent European advances in utilizing spent sulphite liquor, an industry research scientist left June 29 on an 8-week survey trip. Averill J. Wiley, technical director of the Sulphite Pulp Manufacturers' Research League, will visit half a dozen principal paper-making nations and attend three scientific meetings in Germany and Sweden. He will investigate utilization and disposal processes employed by those European mills known to have made substantial progress in reducing their discharge of sulphite liquor into the streams and thus increasing the volume of oxygen dissolved in stream water and available for fish.

Third Volume of Textbook Issued

Volume III of Pulp and Paper Manufacture has just come off the press. This book, which is entitled "Manufacture and Testing of Paper and Board," represents the third of four projected volumes in the present revision of the industry's text books, which were previously labeled "Manufacture of Pulp and Paper." As in the case of the previous volumes this book was written by teams of the foremost experts in paper and board manufacturing in North America, under the guidance of J. N. Stephenson, editor-in-chief.

The scope of the volume is indicated by the chapter headings as follows: Auxiliary Apparatus and Operations Preliminary to Paper Machines; The Fourdrinier Section; Press Part; Cylinder Machines, Vats and Presses; The Dryer Part; Calenders, Slitters, and Winders; The Paper-Machine Drive; Specialty Papermaking Machines; Paper-Production Calculations; Handmade Papers; Finish of Paper; The Coating Process; Gummed Papers; Waxed and Lacquer-coated Papers; Paper Testing.

This outstanding volume is a worthy successor to previous editions. The industry owes a debt of gratitude to the Joint Textbook Committee of the American and Canadian industry for continuing with such success this project which began in 1918 and is now appearing in a fourth edition.

This book which is published by McGraw Hill Book Co., contains 945 pages and is priced at $11.00.

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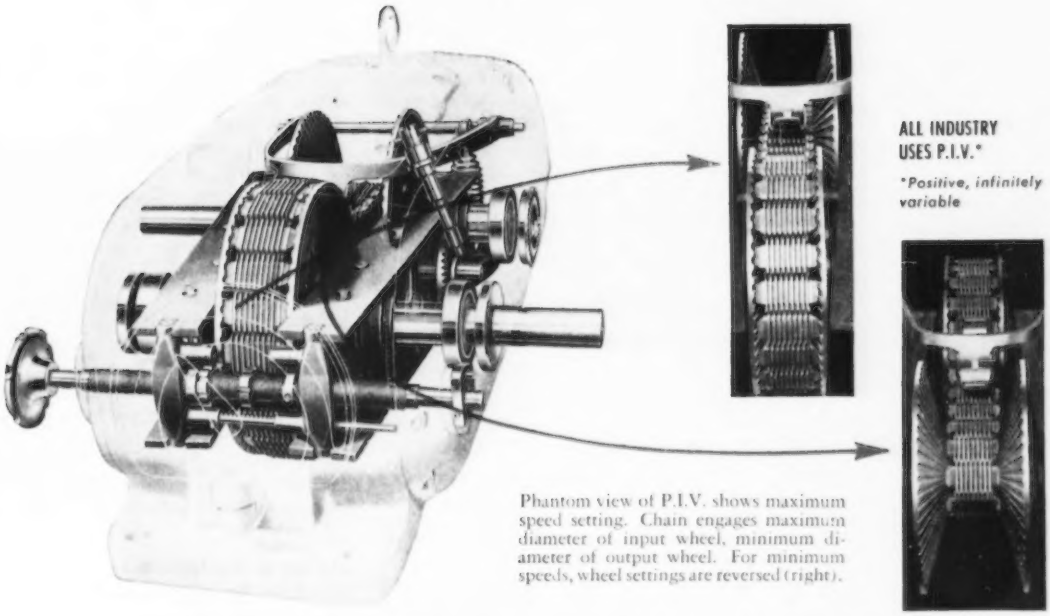

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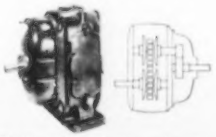

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FORESTRY

Florida Forestry Board Steps Up Activity

The Florida State Board of Forestry has received a budget appropriation of $2,700,000 for the fiscal year starting July 1, a gain of $400,000 over the current allotment. Much of the increase will go for rental of airplanes for patrol work during the forest fire season, extension of fire protection into more counties, replacement of outmoded fire fighting equipment and construction of new observation towers. Half of the funds for the forestry budget in Florida come from the state, the other half from federal assistance, the counties, and proceeds from sales of seedlings.

The board set a goal of raising 125,000,000 pine seedlings a year for 20 years to plant an estimated 3,500,000 acres. A third state nursery probably will be established when the demand for seedlings requires it. Last year's production of 37,000,000 seedlings fell short of the 60,000,000 requested. This year's output will be about 50,000,000, according to State Forester C. H. Coulter.

More Than 500 Forest Fires a Day in 1952

An average of more than 500 forest fires a day was reported during calendar year 1952 by State and Federal agencies engaged in fighting forest fires. Richard E. McArdle, chief of the Forest Service, while deploring the nation's fire loss, pointed out the improved record over the past 10 years and expressed appreciation for public aid in reducing fires caused by carelessness.

Forest Service field offices, State forest services, the Department of Interior, Soil Conservation Service and the Tennessee Valley Authority reported 188,277 forest fires last year. While this represents an increase of 15 percent over the 164,090 forest fires reported in 1951, it is well under the five-year average of 190,000 fires. Forest fires averaged 210,000 per year up to 1942 when the present nationwide Cooperative Forest Fire Prevention Campaign was launched under sponsorship of The Advertising Council.

This program — which features Smokey the Bear, and the intensive State Keep Green programs, coupled with support of conservation and youth groups—has developed public awareness to the need for forest fire prevention. Proof of this is the fact that in 1942 national forest lands showed one fire per 3,000 visitors while in 1952 only one fire was started per 5,000 visitors.

Fires burned a total of 14,187,325 acres in 1952 as compared to 10,781,039 acres in 1951 and a five-year average burn of about 16,296,000 acres. Mr. McArdle pointed out that the 1952 acreage burned would make a strip nearly a mile wide around the earth at the equator. "It means the destruction of a lot of timber and valuable watershed lands," he added.

Reason for the increase in the number of fires and the acreage burned in 1952, was the long period of extremely dry weather throughout the country during the months of October and November, coupled with an increased use of the woods. Mr. McArdle also pointed out the continuing need for public cooperation since 94 percent of last year's fires were man-caused.

Brunswick & Duke Univ. To Study Southern Hardwoods

A five-year research program in the growing and harvesting of hardwoods for paper pulping has been launched by the Duke University School of Forestry at Durham, N. C., in cooperation with the Brunswick Pulp & Paper Co. of Brunswick, Ga., which has contributed $15,000, at $3,000 a year, for the project. The program marks the first time that industry funds have been made available for increasing forestry knowledge about hardwoods in the Southeast.

The Brunswick Pulp & Paper Co. owns large forest acreages in Georgia and uses both pine and hardwoods in manufacturing high-grade bleached sulphate pulp. Lack of forestry information on the best methods of cultivating hardwoods has led to the Duke investigation. A. E. Wackerman, professor of forest utilization at the university, and S. N. Cooper, manager of timberlands for the Brunswick company, worked out the research arrangements.

"Many hardwood species until recently have been considered weed species, interfering with the growth of pines," Prof. Wackerman explained. "However, new knowledge of how various woods can be pulped has focused the attention of forest industries and foresters on utilizing such trees for profit instead of eliminating them from forests at a cost." Types of hardwood to be investigated include river bottom, hammock, swamp and dry ridge.

Deer Cover Provided in St. Regis' Woods

Announcement has been made by Samuel Shane, public relations director, that St. Regis Paper Co. will cooperate this season with New Hampshire Fish and Game Department when it harvests part of its timber crop in the Cedar Stream area of northern New Hampshire.

St. Regis loggers will leave uncut a strip of green timber about 150 feet wide along the north bank of Middle Branch of Cedar Stream, for a distance of about two miles. This strip will join a similar uncut area belonging to the New Hampshire Water Resources Board. Another ¾ mile strip will be left along the Bog Branch, which also adjoins uncut lands of the Water Resources Board.

All of these areas will be marked out in the woods by the state's Fish and Game Department, and will be carefully defined in St. Regis agreements wiith logging contractors.

The purpose of leaving these strips of sheltering timber along the banks of streams is to provide cover for the deer, near a source of food. The favored deer food is the abundant quantity of plants and sprout growth which come up shortly after a timber cutting operation. The border between uncut timber and cutover land provides an ideal feeding place for deer, as food is abundant and shelter is near at hand.

Oxford to Move Woods Department

Some time this fall the Woodlands Department of Oxford Paper Co. will move from its present offices in Portland, Maine to new offices in Rumford. This change in location has been under consideration for some time and is designed to permit closer coordination of this department with the various related manufacturing functions in Rumford.

Hugh J. Chisholm, president of the company said that the complexities of wood operations, purchase, delivery and usage have increased during recent years due to the increase in the size of the Rumford operations. With the gradually changing wood picture, Rumford has become the natural focus for this activity rather than Portland.

It is presently anticipated that H. G. Schanche, assistant woods operation to the executive vice-president; R. R. Drummond, general manager, woods department; and M. L. Beach, assistant general manager, expect to move to Rumford sometime this Fall together with other members of the department staff.

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Effect of Bleaching Treatments On the Physical Properties of Cotton Linters Pulp

E. F. Thode, P. S. Hangal,[1] and John Lewis[2]
University of Maine, Orono, Maine

Cotton linters pulp prepared by a caustic cook and by an alkaline sulphite semichemical cook were bleached with both sodium hypochlorite and calcium hypochlorite solutions and subsequently superbleached with sodium peracetate solution. Brightness, cupriethylenediamine viscosity, and beater test data are reported.

Both the caustic cooked and semichemical cooked linters bleached to a brightness value of 88 by use of one and one-half per cent calcium hypochlorite followed by two per cent sodium peracetate (as peroxide). The semichemical pulp required only one per cent hypochlorite prior to peracetate treatment to attain this final brightness, however. In addition to being an easier bleaching pulp than the caustic pulp, the semichemical pulp showed less degradation, in both the unbleached and bleached states.

Sodium hypochlorite bleach produced excessive degradation of both pulps as displayed by low CED viscosity and poor physical tests. A correlation of burst factor with CED viscosity for pulps beaten 105 minutes showed a good linear relationship.

Introduction

Cotton linters has been a raw material for fine paper manufacture for many, many years. The removal of dirt, and ligneous impurities is usually accomplished in the mills by the same caustic cooking methods and hypochlorite bleaching methods employed in the preparation of rag stuff. While this has sufficed, the question has long been raised as to whether or not there might be more satisfactory methods of handling the particular case of cotton linters. One such attempt along this line was carried out recently when a number of writing paper manufacturers tested chemically purified cellulose prepared from cotton linters by a chemical manufacturer. This chemical cellulose was of very high brightness and purity but some samples appeared to have been excessively degraded as far as papermaking purposes are concerned. The strength properties of the resultant papers were quite poor, in many cases.

Data appear to be lacking on the effect of bleaching procedure and the extent of bleaching on the papermaking properties. Also the matter of initial preparation of the raw material by any method other than a caustic cook does not seem to have been reported.

It was therefore the object of this work to study the effect of bleaching procedure and extent of bleaching on the brightness, cupriethylenediamine (CED) viscosity, and strength properties of cotton linters pulp. It was incidentally decided to compare an alkaline sulphite semichemical cooking procedure with conventional caustic preparation and also to determine the effectiveness of sodium peracetate superbleaching on cotton linters pulp.

Procedure

Two cooks were made using a small rag boiler of about 200 lbs. capacity. Only 20 lbs. of cotton linters were cooked in each case, however, so a somewhat high liquor-to-linters ratio was required. In the caustic cook the initial liquor-to-linters ration was 10:1, the liquor contained 8.4 g/l of alkali as NaOH and had an initial pH of 11.6. Cooking continued for six hours at 40 p.s.i.g. steam pressure. At the end, the caustic concentration was 3.5 g./l. and the pH was 10.6. In the semichemical cook the liquor-to-linters ratio was 15:1, the initial sodium bisulphite concentration corresponded to 16.8 g./l. of sulphur dioxide, and sufficient soda ash was present to bring the pH to 11.4. At the end of the six hour cook (again at 40 p.s.i.g.) the sulphur dioxide content was 5.8 g./l. and the pH was 10.5.

Portions of the thoroughly washed stock from each cook were bleached with varying amounts of calcium and sodium hypochlorite solutions. One-half, one, and one-and-one-half per cent available chlorine based on bone dry weight of linters was employed in separate bleaches with both kinds of hypochlorite. All of these bleaches were carried out at ten per cent consistency for 3.5 hours. The temperature was maintained at 110° F and the pH kept between 8 and 11.

A three stage chlorination-caustic extraction-calcium hypochlorite bleach employing one per cent total available chlorine (60 per cent of this in the chlorination stage and 40 per cent in the hypo stage) was also tried.

The stock which had been subjected to various degrees of bleaching in the preceding procedure was then superbleached. This was done in separate operations, with one per cent and two per cent sodium peracetate solution respectively. A consistency of 15 per cent was employed, the temperature was 130° F, the pH was adjusted to the range of 9 to 11, and a bleaching time of one-half hour maintained. At the end of the designated time of bleaching the pulp was diluted to five per cent consistency and enough sulphurous acid was added to lower the pH to 5:

Sodium peracetate bleach is prepared from sodium peroxide solution and is reported in terms of percentage by weight of sodium peroxide on the bone dry weight of the fibers. 500 ml. of the sodium peracetate bleach liquor may be made by adding the following in the order named, being sure one ingredient

1. Present Address: Oxford Paper Co., Rumford, Maine
2. Present Address: Lowell Technological Institute, Lowell, Mass.

TABLE I
Comparison of Data on Cooks

Type of Cook	Caustic	Semichemical
pH Range During Cook	11.6-10.6	11.4-10.5
Time of Cook	6 hr.	6 hr.
Steam Pressure	40 psig	40 psig
Yield, %	82	86
CED Viscosity, cps	452	531
Brightness, %	58.0	64.0
Beating Time (for succeeding tests)	105	105
Burst, Mullen, %	96	113
Tear Factor	136	158
MIT Fold	46	64

is completely dissolved before addition of the next: To 300 ml. water add 0.6 g.$MgSO_4$, 0.6 g. $Na_2P_2O_7$, 3.5 g. Na_2O_2, and dilute to about 450 ml. Immediately before the solution is to be used add 4.9 g. acetic anhydride and dilute to 500 ml. (For more extensive information see reference No. 3)

Evaluation procedure consisted of determining the brightness of samples at all stages of bleaching and simultaneously obtaining values for the viscosity of one per cent cupriethylenediamine solutions. Beater tests were run on the linters prepare dby the ordinary bleaching procedures. TAPPI Standard procedures were followed for these tests.

Comparison of Data on Unbleached Linters

In *Table I* may be found a comparison of the essential conditions of the caustic and the semichemical cooking procedures. This table also shows the results of tests on the resultant cooked linters before bleaching. Results of physical tests are for 105 min. beating time.

It is apparent that this particular semi-chemical cook was superior in every way to the straight caustic cook, even though carried out under identical conditions of time, temperature, and pH. Previous work indicates that the conditions employed in the caustic cook are very nearly optimum for cotton linters. Without exhaustive comparisons, however, it is impossible to generalize from these data. Since the purpose of this investigation was an examination of bleaching procedures, it was not possible to conduct a large number of cooks. It is hoped that those interested in the utilization of linters will not overlook the possible superiority of semichemical preparation over the conventional caustic cook.

Bleaching Results

Data on the brightness and the cupriethylenediamine (CED) viscosity of the various bleached stocks are presented in *Table II-A* for material prepared by the caustic treatment and in *Table II-B* for semichemical cooked linters. The semichemical stock appears easier-bleaching than the caustic product; this may be connected with the

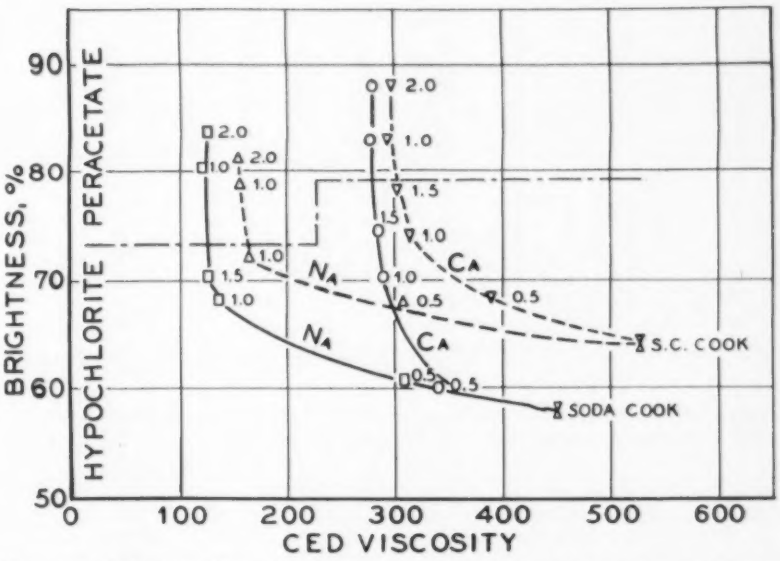

Figure 1—Brightness-Viscosity Relationships during bleaching and superbleaching. (Note: Small numerals next to data points indicate per cent hypochlorite, as available chlorine, and per cent peracetate, as peroxide, employed in the respective procedures.

TABLE II-A
Bleaching Results—Caustic Cook

Bleaching Agent	Per Cent Available Cl_2 Used	Per Cent Peracetate Used	Brightness (Hunter) (Per Cent)	CED Viscosity (1% Solon, cps)
Calcium Hypochlorite	0.5	—	60.0	342
	0.5	1.0	72.2	340
	0.5	2.0	73.4	335
	1.0	—	70.2	291
	1.0	1.0	81.4	288
	1.0	2.0	84.2	285
	1.5	—	74.4	284
	1.5	1.0	83.2	279
	1.5	2.0	88.1	283
Sodium Hypochlorite	0.5	—	61.0	310
	0.5	1.0	71.4	308
	0.5	2.0	72.0	302
	1.0	—	68.2	137
	1.0	1.0	76.2	132
	1.0	2.0	78.4	136
	1.5	—	70.2	126
	1.5	1.0	80.4	121
	1.5	2.0	84.0	126
Chlorine-Caustic-Hypo	1.0	—	76.4	148
	1.0	1.0	84.0	145
	1.0	2.0	88.4	142

TABLE II-B
Bleaching Results—Semichemical Cook

Bleaching Agent	Per Cent Available Cl_2 Used	Per Cent Peracetate Used	Brightness (Hunter) (Per Cent)	CED Viscosity (1% Soln, cps)
Calcium Hypochlorite	0.5	—	68.4	390
	0.5	1.0	76.0	372
	0.5	2.0	80.0	375
	1.0	—	74.0	314
	1.0	1.0	80.2	310
	1.0	2.0	88.0	306
	1.5	—	78.2	304
	1.5	1.0	83.4	292
	1.5	2.0	88.2	298
Sodium Hypochlorite	0.5	—	68.0	308
	0.5	1.0	74.2	302
	0.5	2.0	78.2	300
	1.0	—	72.2	165
	1.0	1.0	79.0	158
	1.0	2.0	81.4	155
Chlorine-Caustic-Hypo	1.0	—	78.4	178
	1.0	1.0	86.0	175
	1.0	2.0	90.0	170

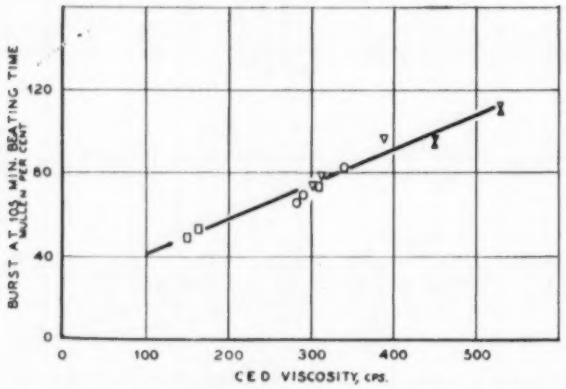

Figure 2—Relationship between bursting strength at 105 min. Beating time and CED viscosity of unbleached and hypochlorite bleached cotton linters pulp.

initial higher brightness of the unbleached, semi-chemical-cooked linters.

The brightness-viscosity data are plotted in Figure 1 to emphasize the different effects of the calcium and sodium hypochlorite as regards degradation of the pulp. The drastic effect of sodium hypochlorite is demonstrated by the rapid drop in CED viscosity as successive increments of bleach are used. In comparison, an approximately equivalent gain in brightness may be obtained with calcium hypochlorite with much less degradation.

Figure 1 also demonstrates how sodium peracetate super-bleaching effects a large gain in brightness with virtually no accompanying degradation.

In *Figure 2* may be observed the relationship between bursting strength at 105 minutes beating time and CED viscosity. The data points represent mullen strength and CED viscosity data for the two unbleached pulps and nine samples of hypochlorite bleached stock. An excellent linear relationship is observed; this indicates that the bursting strength of a hypochlorite bleached cotton linters stock is a direct function of its cupriethylenediamine viscosity. While folding and tearing strength data show a similar trend of increasing strengtth with increasing viscosity, the data points scatter somewhat more than do those for the burst tests. (See *Table III*)

These strength data serve to re-emphasize a point made by previous writers on the subject, namely: In order to obtain satisfactory strength properties, degradation of the linters must be minimized and the CED viscosity maintained as high as possible.

One might be tempted to infer in an offhand way that the highest possible viscosity may be attained by using sodium peracetate alone as the bleaching agent. It is doubtful, however, that a high brightness might be obtained by so doing, without an extremely large consumption of this expensive bleaching agent. Peracetate has its virtue as a *color removal agent* and thus is most effective after *purification* has been accomplished with less expensive agents. An examination of the data in *Tables II-A and II-B* will elucidate this point. A reasonable conclusion would be that linters, after as mild a cooking treatment as possible, should be bleached with calcium hypochlorite to a brightness about 12-14 points lower than the desired final brightness. The job should then be completed by peracetate superbleaching. Such a procedure would be expected to give the best physical properties consistent with the brightness desired.

Comments on Needed Work

While paper prepared solely from the bleached linters made in this investigation probably would not meet rag paper standards for physical tests, the fiber so produced is sufficiently white and strong for use in admixture with rag half-stock. If the raw material situation warrants, such bleached linters should be a valuable extender for the fiber prepared from high grade rags. It would therefore seem desirable that experiments be made on the preparation of a 100 per cent cotton content papers containing various amount of bleached linters of the type here described in place of rag half-stock.

The semichemical method of cooking used here gave very encouraging results; it is suggested that this process be investigated systematically in order to ascertain the conditions whereby high-strength, easy-bleaching linters may be economically produced.

Conclusions

Cotton linters which have been subjected to an alkaline cook may be bleached to a high brightness and yet retain satisfactory strength by means of a procedure employing calcium hypochlorite bleach followed by sodium peracetate superbleach.

Sodium hypochlorite is not a satisfactory bleaching agent for cotton linters because it promotes excessive degradation of the fiber.

Acknowledgement

The authors wish to thank F. S. Klein and the Byron Weston Company for their helpfulness and interest in this line of study.

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A technical paper in the Maine Technology Experiment Station Series.

TABLE III

Strength Properties of Hypochlorite Bleached Cotton Linters

Cook	Bleach	% Cl_2	Brightness	CED Visc.	Freeness (ml)	Properties at 105 Min Beating Burst (Mullen/BW)	Tear Factor	MIT Fold
Soda	Ca	0.5	60.0	342	300	82	140	54
Soda	Ca	1.0	70.2	291	280	70	116	38
Soda	Ca	1.5	74.4	284	265	66	121	34
Soda	Na	0.5	61.0	310	290	74	120	39
Soda	Na	1.0	68.2	136	265	54	116	24
Soda	Na	1.5	70.2	126	240	48	112	22
S.C.	Ca	0.5	68.4	390	305	96	144	56
S.C.	Ca	1.0	74.0	314	284	79	138	49
S.C.	Ca	1.5	78.2	304	273	74	121	42

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New Developments In Tall Oil

Archer E. Griffin*

Vice President — Tall Oil Association

In the last twenty years or so the basic industries of this country have been growing up in their attitude toward natural resources. What was once dumped to the rivers or burned under the boilers or blown out the stack—is now being examined carefully for possible use.

Many of the materials developed through industrial research on by-products have become as valuable and as salable as the original products themselves. The kraft pulp and paper industry has brought quite a few materials of this kind to market over the years. *Tall oil is one of them.* Recent developments indicate that tall oil may be the most valuable of them all.

Tall oil is principally a mixture of fatty acids related to linoleic and oleic acids, and rosin acids related to abietic acid, together with small amounts of sterols. This combination of fatty and rosin acids is a highly desirable one for certain uses, such as soaps, emulsifiers, paint driers and drying oils of all types. This is discussed in detail later.

Crude, or whole tall oil, as it's sometimes called, is produced by splitting, with sulphuric acid, the sodium salts of abietic, oleic and linoleic acids produced when pine wood is chemically pulped by the sulphate process.

Our chemists have compared crude tall oils from mills located in widely separated areas of the country, and have found marked differences in the rosin and fatty acid ratio. The analyses show a range anywhere from 35.60 per cent of rosin acids and from 55.30 per cent of fatty acids. Nature herself has given us a reasonably varied composition to serve our industrial needs.

But crude tall oils, like other crude raw materials, are limited in usefulness by undesirable qualities such as dark color, poor odor, etc. So we've developed two primary methods of refining.

* Sales Manager—Chemical Div., Camp Manufacturing Co., Franklin, Va.

New actual and potential uses for tall oil are being uncovered almost daily says Mr. Griffin of this paper. He reviews the latest development in the refining, modification, and utilization of tall oil.

Refining

One method involves the mixing of whole tall oil, diluted with mineral spirits, with concentrated sulphuric acid. An acid sludge, about 15 per cent of the total product, is separated out, and the remaining 85 per cent, after the mineral spirits have been distilled off, is designated as refined tall oil. Now this is what we call a fixed ratio material. That is, the rosin-to-fatty-acid ratio has not been changed from that of the original crude, but the color and odor have been much improved.

The other method involves vacuum distillation by either batch or continuous processes. This method in its simpler applications produces distilled tall oil of good color and odor, and a reduction of rosin acid content to about 26-30 per cent. Tall oil yields are 5-10 per cent lower than those obtained by acid refining.

Further refinement in still design and additional processing has brought this method to the point where the products can no longer be considered tall oil in the usual meaning of the term, but are referred to as tall oil fatty acids and tall oil rosin. Some of these fatty acids contain one per cent or less rosin acids, have excellent color and a distinct fatty acid odor. The rosin too can be of excellent color and practically free of fatty acid.

It's been said that tall oil is a low grade raw material, and this was true when the crudes were the only types available. But our present methods of refining and distillation are capable of producing materials suitable for many varied uses. The very top grades are, of course, more expensive, and their place in the fats and oils picture depends on market fluctuations. In practice, tall oil will be refined only to that extent which will give it a competitive advantage.

Separating the Rosin and Fatty Acids

About ten years ago, when there was a critical shortage of fats and oils, research people began to consider ways and means of drastically altering the fatty-to-rosin-acid ratio of tall oil by methods other than distillation. In fact, at that point they became interested in economical methods of separating the two types of acids completely, since the fatty component was in great demand.

Work on this kind of tall oil separation is still going on, but as yet no commercially feasible process has been developed. But we're getting closer, and I think you'll be interested in some of the separation methods that look good in the laboratory.

In 1944, for example, Othmer and Papps, of Brooklyn's Polytechnic Institute, separated the two main components of hydrogenated tall oil—stearic and abietic acids—by selective adsorption, using activated carbon. Separation was accomplished by feeding an eight per cent solution of hydrogenated tall oil in a suitable solvent through a glass column containing activated carbon.

After the hydrogenated tall oil was fixed on the adsorbent, the abietic acid was first washed through and out of the column by additional fresh solvent, followed by the stearic acid which was preferentially adsorbed. The efficiency of separation and the rate of through-put depended mainly on the solvent. 1-nitropropane was the best solvent among twenty-nine considered.

And in 1949, Dunlap, Hassel and Maxwell, at Armstrong Cork Company, selectively esterified tall oil with various polyhydric alcohols to give tall oil fatty acid esters practically free from rosin acids, and in a form directly suitable

for drying oil applications. Their work showed that the difference in rates of esterification between fatty and rosin acids persists even up to 275°C.

At 180°C. in six hours the rosin acids were not appreciably esterified while the fatty acid esterification was virtually complete. Esterification of the rosin acids became evident at 220°C. and was progressively more rapid at 250°C. and 275°C.

The rosin acids of the product of selective esterification were removed easily and almost completely from the fatty esters by washing a naphtha solution of the reaction product with aqueous alkali solution. The fatty esters had an iodine number above that of soybean oil.

In 1952, Jones and Foreman, of the Standard Oil Co. of Ohio, fractionated tall oil by liquid thermal diffusion. The apparatus consisted of two parallel smooth walls separated by a narrow space which was filled with the liquid to be processed. One wall was heated, the other cooled. The sharp temperature gradient across the liquid produced separation, aided by convective flow—upward along the hot wall and downward along the cold wall.

Evidently, molecules of abietic acid are diffused away from the hot wall to a greater extent than those of the fatty acid components of tall oil. They enter the downward moving stream on the cold wall and so concentrate toward the bottom of the column. The fatty acid molecules concentrate on the top. Several passes through the column were required to effect a satisfactory separation of rosin acids from fatty acids.

And recently we've heard that dimethyl formamide has high selective solvent power for rosins, and may have application in tall oil separations.

So we have something substantial to work toward. In the meantime, the presently available refined and distilled tall oils are used primarily in soaps and emulsions, driers and drying oils.

Application in Soaps

The application of tall oil in soaps has increased, over a period of comparatively few years, to about 25 per cent of the total fatty acids employed in the field. It was first used as a substitute product for the vegetable and animal fats unobtainable in wartime. But the easing of shortages didn't lessen its popularity with the soapers. They had learned that tall oil's low price, variety of grades, and plentiful supply made it a valuable raw material.

For the soapers, tall oil has special advantages over the more saturated fatty acids. Its soda soaps are much more soluble in water than those of tallow or coconut oil, notable at low temperature. In some cases this permits formulas requiring potash soaps of stearic, lauric or palmitic acids to be adjusted to soda soaps of tall oil. Here you save money both ways—low cost fatty acid and low cost alkali.

And, too, soaps made with tall oil are less viscous as a rule. They can be blended with the more saturated fatty acids and used as dispersants in oil emulsions to give better stability and surface activity. Where expensive alkalis like triethanolamine or morpholine are used, the comparatively low acid numbers of tall oils offer savings of ten per cent or more of the alkali.

Tall oil soaps are unusually good oil and grease emulsifiers and excellent suspending agents. This makes them particularly popular for degreasing engines, for cleaning asphalt tile and linoleum, and for degreasing metals prior to plating.

And they have good detergent qualities for industrial laundering, wool scouring, metal cleaning—even industrial hand soaps. Tall oil soaps can be made up in all forms—hard, jelly, liquid, powdered, beads, spray-dried, paste.

Emulsions

In the specialized field of emulsions, tall oil is showing great promise. For example, a number of soluble oil manufacturers favor tall oil soap as an emulsifier because it's more oil soluble than the soaps of more saturated fatty acids, and so gives more compatible mixtures.

Insecticidal emulsions of DDT, chlordane, toxaphene and other chlorinated hydrocarbons are being prepared with tall oil emulsifiers.

Considerable tall oil goes into the manufacture of cutting oils—the clear and emulsion types—and into asphalt emulsions of the quick and medium break types.

Protective Coatings

But the really spectacular developments in tall oil usage have come in the protective coatings field, and I'd like to review for you, briefly, some of the work that's bringing tall oil into tremendous prominence in the fats and oils picture.

Tallate paint driers can replace naphthenates and ethyl hexoates. As you know, a paint or varnish drier is generally a metal-organo compound, in which the acidic hydrogen of an organic acid has been replaced by one of the so-called drying metals. These metals act as catalysts to speed up the drying time of paints and varnishes, and the larger the metal content, the better the drier.

The organic portion of the drier compound provides the required solubility of the drying metal in the systems to be catalyzed—a very important function, since the drying metal must dissolve in the coating material prior to its application in order to act as an effective catalyst.

An analysis of all available organic acids reveals that only naphthenates, ethyl hexoates and tallates are really useful for thhe purpose. Here's why the tallates are taking the lead. First, their cost is relatively lower than that of the other drier acids. But more important, metal salts are more soluble in tall oil, and larger concentrations can be achieved in the drier.

And now, work by Roy Lawrence of the U. S. Dept. of Agriculture, and other investigators reveals that these properties of tall oil can be further improved by pretreatment with aldehydes. The net results of the aldehyde treatment are to give a lower acid number and cause greater quantities of the metal to react with the same amount of oil. In effect, a much more concentrated metal tallate is formed.

Drying Oil Field

It is in the drying oil field that tall oil has made the greatest strides. In 1951, it ranked fourth among the drying and semi-drying oils used in paint and varnish manufacture, the first three being linseed, soybean and tung. Twenty-eight million pounds were used by the industry, about 15 percent of all the tall oil consumed that year. The twenty-eight million figure is particularly pertinent when you consider that in 1943 the sale of tall oil to the paint and varnish industry amounted to about two million pounds.

For use in the drying oil field, tall oil is first processed by one of a number of methods. Appreciable amounts are now being combined with slaked lime to form metallic soaps soluble in mineral spirits and compatible with other drying oils. These limed tall oils, with or without added driers, act as gloss oils. They're used mostly for interior paints, but the substitution of limed tall oil for about 25 percent of linseed is said to be practical in many outdoor paints without much sacrifice of durability.

Tall oil esters—formed by heating with polyalcohols—act as drying oils. Generally, the greater the number of reactive hydroxyl groups, on the alcohol, the more rapid-drying the ester will be. Esters are superior to limed tall oils in water and alkali resistance and film toughness.

A wide variety of esters having a considerable range in properties can be made. Esterified tall oil rosin acids resemble those of gum or wood rosin. Esterified tall oil fatty acids are similar to the corresponding esters of soybean fatty acids.

Modern coating must dry quickly to durable films which are hard but not brittle and which will remain glossy. Drying oils alone do not give such coatings; their dry films are too soft. Consequently, rosin esters, which are hard solids, are added to drying oils to improve the hardness of the dried film. By sufficient heating the oil and rosin ester link chemically, a reaction which is aided by forming the rosin ester itself in the presence of the oil. This last procedure is known as *in situ* esterification.

Since tall oils contain both rosin and fatty acids, esterification *in situ* with other oils provides both rosin esters for hardening the fatty acid esters, and the latter for extending other more expensive drying oils. Tall oil as a source of rosin acids is also much more convenient to handle than solid rosin.

The glycerol esters are probably most well known, and resemble soybean oil interesterified with ester gum. They're usually esterified to an acid number of 10 or less, which is considered low enough to prevent livering through the reaction of basic pigments. Tall oil glycerol esters can be made compatible with all other common drying oils and with nitro-cellulose. They're said to be more soluble in alcohol than linseed oil.

Pentaerythritol has four reactive hydroxyl groups instead of the three for glycerol and its esters of tall oil are faster drying and the dried films are more resistant and harder. In addition to the technical mono-pentaerythritol, the di- and tri-polymers of this alcohol have been used. The various esters are usually employed in combination with other drying oils such as tung, and also in combination with dibasic acids and with other resins.

Sorbitol is a polyalcohol with six hydroxyl groups but they're not equally reactive, and they also react with each other to form internal ethers and polymers. About three of the hydroxyl groups per monomer are available under the conditions used for tall oil esters. They're not as reactive as the primary hydroxyls of pentaerythritol and for low acid number esters a mixture of sorbitol with more reactive polyalcohols is used. Sorbitol esters are also used with dibasic acids and other resins.

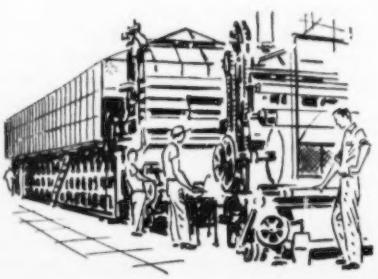
Not long ago the development department of West Virginia Pulp and Paper Company investigated the properties of varnishes made from various tall oil esters, using the polyols already mentioned plus others including Epon 1004. The varnishes were prepared by cutting with mineral spirits to a D-G viscosity and adding naphthenate driers. They were allowed to age for 48 hours after addition of the driers, and then evaluated by applying a film of each to a glass plate and determining drying

time, hot water resistance, hardness and flexibility.

The Epon esters of both distilled and refined tall oils dried hard in less than 18 hours, and had superior alkali resistance and hardness. It was apparent from the data that these esters could find practical application as paints or varnishes, without the addition of more expensive, faster-drying oils. Also 20 percent blends of Epon 1004 tall oil esters, combined with tung oil modified phenolic resin varnishes had a drying time of about 2 hours less than the tung oil vehicle alone.

In a recent patent awarded to Carl F. Peters, of Velsicol Corp., tall oil cyclopentadiene condensation products are described which are claimed to be soluble in drying oils as well as in the usual paint and varnish solvents. These products are useful resins which afford a substantial economy in glycerins and good film properties to a varnish.

Bosch and Drubel of the North Dakota Agricultural College have styrenated and then esterified tall oil with a number of polyalcohols, the most promising of which was tripentaerythritol. Varnishes made from a 62 percent fatty acid tall oil which had been treated in this manner gave films of excellent flexibility, good brush-ability and good water resistance, and which hardened and dried in a short time.



Within the last six months, Gibbons and Janke of the Mellon Institute, have prepared drying oils by the direct esterification of methyl alpha-D-glucoside with pentaerythritol and tall oil. The glucoside offers four reactive hydroxyl groups and yields oils with better drying and bodying characteristics which dry to harder films having good adhesion, water and alkali resistanace.

The action of the glucoside compares favorably with that of polyols containing six or more hydroxyl groups—behavior which is attributed to its unique cyclic configuration. This particular development is being viewed with more than ordinary interest.

When esters are made to include dibasic acids such as phthalic or maleic, oils are formed which dry rapidly to films more resistant to wear, heat, chemicals and weathering. The glycerol or other polyol esters of such dibasic acids alone form hard resins, harder than ester gum but more expensive. When esterified with tall oils—touch, durable, adherent and quick drying.

Tests so far have led one investigator to conclude that a polypentaerythritol ester of tall oil and maleic acid could be rated as rapidly drying, of acceptable color, superlative gloss, excellent hardness, satisfactory water and alkali resistance, and fair outdoor durability. Other investigators also found that dibasic acids combined with tall oil greatly improve its drying, color, and exposure records. Under their test conditions glycerol and pentaerythritol simple esters appeared better than esters of higher alcohols. In general the exposure records of their tal oil varnishes compared well with those of varnishes of similar length based on tung and soya oils.

Research Still Progressing

New actual and potential uses for tall oil are being uncovered almost daily. Research has been so prolific that no less than 15 patents were granted on tall oil products and processes in the six month period from May to November, 1952. They cover everything from petroleum demulsifiers through binders for linoleum to drying oils and oil soluble gelling agents. Many of its possibilities are probably *still* undeveloped and some one today may be bringing an undreamed-of application for tall oil to light.

From the few instances of research on tall oil mentioned, it is apparent that this basic raw material will continue to increase in usefulness and value.

Gould-National Batteries Explains

How to Use a Carbon Arc Burner in Battery Repair

Lead burning is becoming increasingly important in battery maintenance programs as industry becomes more alert to the economic advantage of more careful treatment of the primary energy sources which drive so many lift trucks, tractors, shuttle-cars and other industrial vehicles. Lead burning (welding) may be done with an acetylene and oxygen torch or with a carbon burning outfit. The latter uses electrical power from the battery being repaired and involves but the simplest of equipment. The following instructions and precautions are volunteered by Gould-National Batteries as part of its current plus-performance plan.

The carbon burner consists only of an electrode holder and a carbon rod. It is designed for six volts (three cells of a battery) as its power supply. It is a common error to use the carbon burner on either fewer or more cells, the former being inadequate for making a good weld, the latter actually endangering battery, operator and joint.

The burning tool may be connected either directly to the battery being worked upon or to the cells of an adjacent battery (if the unit under repair is entirely discharged.)

The rod is pointed to a ⅛-in. tip and is permitted to extend from the holder to a length of about 1½ in. When possible, it should be connected to its power source so that the carbon rod is of negative polarity. This makes welding easier as it tends to keep the joint and the working surface clean. The lead surfaces to be welded must be clean. A wire brush may be used for this purpose after the surfaces have been neutralized. The inside hole of a connector may be cleaned with a knife. The tip of the carbon should be wire-brushed before starting. Dark glasses are recommended.

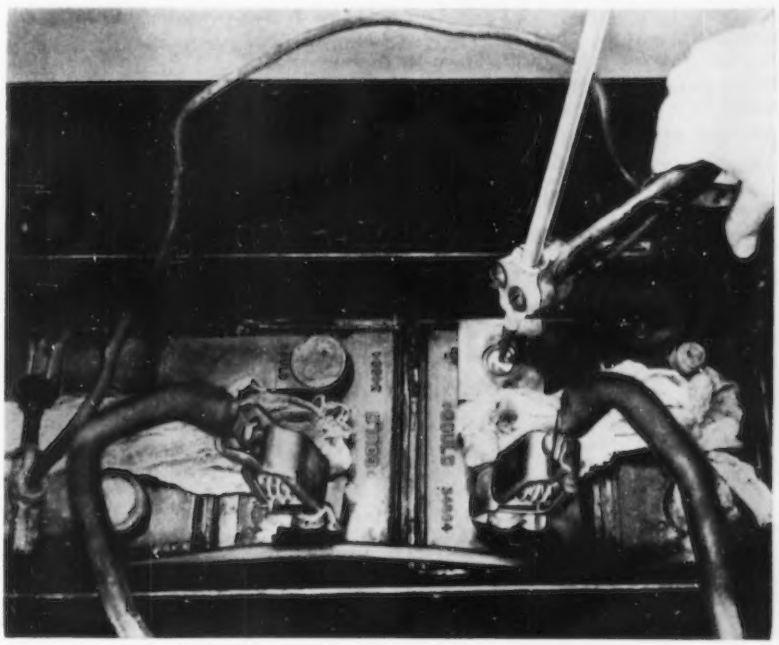


Figure 1—When building up battery posts the use of a mold is helpful, but care must be taken to prevent the carbon rod from touching the side of the mold. The jumper connection in the foreground replaces a missing connector so that six volts (three cells) is across the weld.

The secret of making a good joint is to have clean materials and a hot carbon. The technique calls for thoroughly heating the center of the part being worked until a puddle of molten metal exists. Only then may additional lead be added. Work rapidly to complete the operation before the entire part melts. When possible use a damp rag to surround the part being worked on *(Figures 1 and 2)*. When building up posts or splicing a connector, use molds made for the purpose.

After making a burn, allow the joint to cool undisturbed. In cooling the lead will shrink slightly. Do not move or disturb the joint during cooling; this

may cause the lead to crystallize and result in a poor joint.

When working within a mold, it is necessary that the carbon not be permitted to touch the side of the mold *(Figure 1)*.

To determine whether a weld has been properly made it is wise to test with a pair of pliers (after the joint has cooled) to see if the joint will strongly resist separation. If separation occurs, examine the two surfaces to determine the points and nature of weakness so that the situation can be corrected on the second try.

When adding new lead to a joint, touch the new lead to the carbon rod and let it flow down into the puddle *(Figure 2)* rather than to plunge cold lead into the puddle itself.

In burning a connector to a post, one slow trip around the post should be sufficient to make a satisfactory weld. Although the same is true of burning a post to the lead-insert of a new cover, the depth of the joint is such that considerable lead will have been removed from the post in a single slow circuit around the joint. Therefore, the carbon point should be returned to the center of the post and new lead added to raise the post height up to the level of the top of the post mold.

Figure 2—Proper technique in lead burning for battery repair involves using three cells of the battery (six volts) and a simple pointed carbon rod. Here a connector is being burned to a post—fresh lead being applied to the rod so that it flows down into the puddle, and damp rags being used to protect adjacent parts.

Fire Causes and Fire Protection in the Pulp and Paper Industry

Bertel Aschan

Abstract

When making statistical investigations of a mutual fire insurance company with industry as the only insurance object the writer has put together comparative tables of the distribution of different fire causes among woodpulp, cellulose and paper industries and he has noticed that certain fire causes are specific for every branch of industry.

In the wood pulp industry ignition through bearing friction dominated and the greatest frequency of losses are the lightning damages. In the wood pulp industry, ignition through careless welding is the most common cause and the greatest frequency of losses is caused by explosion. In the sphere of paper industry overheated steamlines cause the greatest losses while the losses caused by lightning and the friction of bearing show the greatest frequency. The final result shows that the chemical pulp industry has in proportion to the amount insured the smallest loss ratio, in the next place the mechanical pulp industry and the paper mills being in the third place.

A short investigation of the ratio between premiums paid and losses, indicates that the whole pulp and paper industry during the period 1923-32 received on claims 71.2 percent of the premiums paid, during 1933-42 53.5 percent and during 1943-51 66.1 percent of the premiums paid. An investigation of stored pulp and paper shows that the losses in proportion to the premiums have been greater than of the industry itself, 1923-32, 137.3 percent; 1933-42, 104.4 percent; 1943—51,90.5 percent, which shows that the setting of premiums has been too favorable for these stocks. A comparison between losses of the pulpstocks and paperstocks indicates that the pulpstocks during the whole period have spent 86.1 percent of the premiums while the paperstocks during the same period have spent 174.2 percent of it. As a result the writer comes to the conclusion that the main purpose with regard to the improving of fire protection is to make the great losses impossible by building and sectioning well and avoiding gathering of great stocks in one block.—Paper and Timber (Finland), Special Number 4a, 1953.

NEWS OF ASSOCIATIONS

D. C. Mather

Empire Tappi Elects Mather

D. Chace Mather was elected chairman of the Empire State Section of TAPPI at the group's annual meeting, June 8-10, at White Face Inn, Lake Placid, N. Y. Mr. Mather is technical director, Carthage Paper Makers, Inc., Carthage, N. Y. He is a former chairman of the Northern District of Empire TAPPI.

Approximately 260 members and guests were registered at the annual meeting. TAPPI men heard talks on Centricleaners, making airborne malordors, decalators, and other interesting subjects.

APPITA Annual Meeting

The Australian Pulp and Paper Industry held their Seventh General Conference in May in Sydney, Australia. Our readers will be interested in the technical program of this five day meeting which included a day of mill visits:

Papers presented were as follows:

The Place of the Pulp and Paper Industry in the Australian Economy by C. D. Kemp.

Safety in the Paper Mill by H. Greenwood Thomas.

The Distribution and Nature of Resinous Material in Pinus Radiata by N. J. Buckland, O. T. Dalley and C. J. Mathieson.

The Effects of Increase in Age on Density and Moisture Content of Pinus Radiata by J. A. Loe and A. W. Mackney.

Preparation of Clay as a Paper Filler by K. A. McKercher and G. J. Robertson.

Semi-Chemical Pulping of Hardwoods with Lime by B. A. Boas.

Hot Alkali Stability of Chemically Modified Cellulose Fibres by A. Meller.

Isolation of Lignin by Alçoholysis by J. W. Merewether.

The Application of Rolling-Sector Regulators to Electric Drives in the Paper Industry by I. F. Darby.

Parallel Operation Between Paper Mill Generating Plant and Local Electrical Supply Authority by P. Altmann.

Measurement of Folding Endurance by W. E. Cohen and A. J. Watson.

Statistical Control of Paper Testing Instruments and Procedures by L. R. Odlum.

Variables in Hand Sheet Formation by A. J. Watson, Gwenneth Farrant and W. E. Cohen.

Design and Operation of a New System of Fume and Heat Recovery in a Sulphate Mill by J. F. Giddings

Instrumentation of a New System of Fume and Heat Recovery in a Sulphate Mill by R. H. Warnock.

The Manufacture and Utilization of Alkali "Lignin" by J. W. Merewether.

Investigation of Fibre Length Index as a Measure of Pulp Quality During Stock Preparation by N. J. Buckland and C. J. Mathieson.

Testing of Wood Pulp for Moisture by D. E. Davis and A. I. M. Rodger.

Calender Operations by E. W. Cooper.

Modern Practices in Machine Coating—A Description of Various Processes by P. A. Tindale.

Superintendents Meeting Dates

DATE	DIVISION	PLACE
July 14	Michigan	Annual Fun Day Kalamazoo Country Club Kalamazoo, Mich.
Sept. 11-12	Northwestern	Hotel Wausau Wausau, Wis.
Sept. 17-19	New York-Canadian	The Alpine Inn St. Marguerite, Que.
Sept. 17-19	Northeastern	Poland Spring House Poland Spring, Maine
October 23-24	Pennsylvania-New Jersey-Delaware Division	Pocono Manor Pocono Manor, Pa.
October 28-30	Southern and Southeastern (Joint Meeting)	Edgewater Gulf Hotel Edgewater Park Mississippi

TAPPI Meeting Dates

DATE	SECTION	PLACE
Sept. 18	Lake Erie	Carter Hotel Cleveland, Ohio
Oct. 8-9	Tenth Fibrous Agricultural Residues Conference	Trenton, Ont., Canada
Oct. 15-16	Third Corrugated Containers Conference	Statler Hotel, New York, N.Y.

Pacific Coast Supts. To Meet In Seattle

Pacific Coast Div., American Pulp and Paper Mill Superintendents Assn. Annual Meeting will be held on December 4-5, 1953 at the New Washington Hotel in Seattle, Wash.

New York-Canadian Div. Supts'. Assn. Fall Meeting

The annual Fall Meeting of the New York-Canadian Div. of the American Pulp and Paper Mill Superintendents Assn. this year is being held in the Canadian Laurentians, September 17-19, at Alpine Inn, Ste-Marguerite, Quebec and Ste-Adele Lodge, Ste-Adele-en-Haut, Quebec.

Poland Springs TAPPI Program Stressed Printability

Various refinements in the printing of paper and board were presented at all the technical sessions of the Joint TAPPI Meeting, held June 19th and 20th at the Poland Springs House, Poland Springs, Maine. Nearly 300 guests and members of the New England Section and the Maine-New Hampshire Section enjoyed a pleasant two days of business and sociability.

Election of Officers

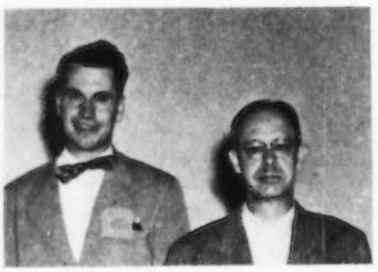
The Maine-New Hampshire Section voted to re-elect Joseph J. Thomas as next year's chairman. Mr. Thomas is research chemist, S. D. Warren Co., Cumberland Mills, Me. Also re-elected were Vice-chairman Arthur E. Jones (research chemist, Oxford Paper Co., Rumford, Me.) and Sect.-Treas. H. E. Pratt (superintendent, Pejepscot Paper Co., Brunswick, Me.) Elected to the executive committee were J. H. "Pete" Heuer, superintendent, bureau of tests, Great Northern Paper Co., Millinocket, Me.; Roland J. Martin, divisional chemist, Fraser Paper Co., Madawaska, Me.; and for a second term, Henry S. Hooper, chief chemist, Penobscot Chemical Fibre Co., Great Works, Me. These three are beginning a three year term. Still serving on the committee are: W. L. Hinds, Keyes Fiber Co.; F. A. Strovink, American Cyanamid Chem. Corp.; J. B. Calkin, Univ. of Me.; J. F. Wright, Allied Chemical & Dye Corp.; A. E. Bachmann, Missisquoi Corp.; and F. N. Sprague, St. Regis Paper Co.

The New England Section also held elections, and Frederic S. Klein was voted the next chairman. Mr. Klein is still manager, Byron Weston Co., Dalton, Mass. Robert W. Ramsdell, Hercules Powder Co., was re-elected secretary; Hermon T. Barker, chief chemist, Bird & Son, East Walpole, Mass. was re-elected treasurer.

Technical Program

Some Things We Would Like To Know About the Printability of Boxboard was presented by Herman W. Verseput, research laboratory, Robert Gair Co., Uncasville, Conn. He described the various tests of paperboard for resilience, gloss, smoothness, and ink receptivity and related these to printing characteristics.

Fall Meeting—Officers of Maine-New Hampshire Section met at Poland Springs and decided to hold the Fall Meeting at the Lafayette Hotel, Portland, Maine, at a time to be set later.



(L.R.) Frank Lincoln, Time Inc., speaker on high-speed letterpress printing; and Art Jones, Oxford Paper Co., re-elected vice-chairman of Maine-New Hampshire Section.

Printability of Paper for Gravure was delivered by Fulton McArthur of the W. W. Fitzhugh Co. In discussing the gravure process, McArthur asked the papermakers to produce sheets as hard as glass so that his printing can stand on top of it.

Coated Papers and the Lithographic Process was a discussion of the role of coatings in supplying the desirable qualities to lithographic papers. The paper was given by John D. Payne, S. D. Warren Co. He also discussed typical complaints against coated paper and refuted the accusation that all poor print jobs are the result of the papermaker.

Coated Groundwood Book Sheets as Used in High Speed Letterpress Printing by Paul Thoma and Frank Lincoln, Springdale Laboratories, Time Inc., Springdale, Conn., was delivered by Mr. Lincoln. He described the various tests given the paper supplied for printing *Life* magazine, and made a plea for uniformity as a partial solution to the many problems of high speed printing.

A feature of the second day's technical session was the showing of two motion pictures: *How to Make a Good Impression and a Better Run for Your Money*. These movies were supplied by the Harris-Seybold Co., Cleveland, Ohio. Following these showings, a panel, made up of the convention speakers, led a discussion of printing problems as related to paper and board manufacture.

Social Program

The convention was entertained the first evening with a dinner and square dance, for which the group was urged to dress in appropropriately rustic costume. Saturday afternoon the men competed in a golfing tournament and a fishing derby. The festivities closed Saturday night with a banquet and dance.

Cunningham, Boston columnist and radio commentator, was main speaker

(L.R.) Joe Thomas, S. D. Warren Co., re-elected chairman, Maine-New Hampshire Section; Harold Knudson, Hollingsworth & Vose, retiring chairman, New England Section; Fritz Klein, Byron Weston Co., new chairman, New England Section.

at the banquet. He spoke on world conditions as they affected New England and emphasized New England's great potentialities in spite of its waning textile industry. The means toward a prosperous future lay, he felt, in the development of new technologies. He praised the technological research now going on at Massachusetts Institute of Technology.

Prizes were awarded at the banquet for golfing excellence and fishing skill. Joe Thomas, now chairman of Maine-New Hampshire Section, took first prize for the largest fish—a four pound lake trout.

The ladies enjoyed a bridge and canasta tournament followed by a tea on Friday afternoon. Their tea on Saturday was accompanied with a style show featuring Bates Disciplined Fabrics.

Committees

General co-chairman of the convention were J. J. Thomas, S. D. Warren and H. W. Knudson, Hollingsworth & Vose. J. F. Wright, National Aniline, headed a committee on local arrangements, made up of R. W. Ramsdell, Hercules Powder; H. E. Pratt, Pejepscot Paper; F. A. Strovink, American Cyanamid. The technical program was arranged by Chairman A. E. Jones, Oxford Paper; F. S. Klein, Byron Weston Co.; George Wallace, Fitchburg Paper; and F. N. Sprague, St. Regis Paper. Mr. & Mrs. L. W. Crouse, Penick & Ford, organized a bridge & canasta party for early arrivals Thursday. The Ladies Card Party was engineered by Mrs. H. W. Knudson and Mrs. J. J. Thomas. W. Connor, Draper Felt, and W. Wentworth, Clinton Products, were in charge of the golf tournament.

Poland Springs Banquet →

In the high heat, most of TAPPI men shed their coats to enjoy the feast in comfort.

Farewell Dinner To Don McCall

A number of Don McCall's friends arranged a reception and dinner for him at the "Press Box," 139 E. 45th Street, New York, on June 17, to bid him Godspeed and every success for himself and his family in their new location in Everett, Wash., where he will be assistant general manager to Anson Moody of the Everett Pulp & Paper Co., Division of Simpson Logging Co.

He was presented with a projector and screen.

(Continued on Page 33)

PAPER PEOPLE

J. B. Jones

Ontario Advances Jones

J. B. Jones has been appointed manager of manufacturing of the Ontario Paper Co., and the Quebec North Shore Paper Co. He had been Assistant Manager for several years.

East Texas Names Morian General Sales Mgr.

Clarke H. Morian, Jr. has been appointed General Sales Manager of the East Texas Pulp and Paper Co., effective August 1. Mr. Morian for some time will make his headquarters in New York City.

Previously he was Eastern Sales Manager of the Hollingsworth & Whitney Co., being associated with them since 1946. Prior to that he was a member of the sales staff of the Cherry River Paper Co.

Mr. Morian has a broad experience in the development and sale of special industrial and food packaging converting papers and board, which, together with chlorine dioxide bleached kraft market pulp, will be among the products of the new mill being built at Evadale, Texas.

During 1951 he served as Chief of the Special Food Board Section of the Pulp, Paper, and Paperboard Division of NPA.

Hammermill Advancements

Hammermill Paper Co., Erie, Pa., has advanced John E. Franzen to manager of industrial paper sales. Ralph R. Butler succeeds Mr. Franzen as manager of sales research.

National Gypsum Engineering Changes

National Gypsum Company has announced the following changes in its Engineering Department due to engineering and construction activities involved in the company's expansion program. Walter H. Wetzel, chief mechanical engineer, will have the additional responsibility of coordinating design and construction work. Special engineering assignments will be handled by Walter A. Schmidt. Peter Badame has been promoted to field construction superintendent in charge of all construction work and Walter V. Sulkowski has been made chief draftsman.

Van Nostrand Sells Brown Pulp in Midwest

R. J. Van Nostrand

J. R. Crawford

Robert J. Van Nostrand has been named Midwestern Representative of the Pulp Sales Division of Brown Co., succeeding William L. Gilman who has retired after forty-six years of continuous service in various departments in Brown Co.

Mr. Van Nostrand is a graduate of the Institute of Paper Chemistry, and has been associated with Brown since 1943. Prior to becoming assistant to Mr. Gilman in the Pulp Sales Division in 1950, he held responsible positions in the Research and Development Department, Technical Sales Department and Paper Sales Division.

Mr. John R. Crawford has been appointed Midwestern Representative for the Solka-Floc Sales Division. Prior to his association with Brown Co. in 1952, he was with Turco Products, Inc., in Chicago.

Nelson Appointed to Study Hawaiian Bagasse

T. J. Nelson

T. J. Nelson, of the technical department of the California and Hawaiian Sugar Refining Corp., San Francisco, is now assistant to the Coordinator of the By-Products Project of the Hawaiian Sugar Planters' Assn., G. W. Aljian.

He is on loan from the California refining organization which is owned by the Hawaiian sugar plantations, and since 1951 has devoted full time as a consultant and job organizer for the by-products work undertaken that year.

Mr. Nelson's principal interest prior to his Hawaii assignment centered on paper, its conversion into economical packages, and on the possibilities of using sugarcane bagasse as a source of fiber in paper making. The latter field is being given first attention in the current Hawaiian study of bagasse and molasses utilization.

His current engagement in sugarcane by-products research will continue for at least several months, because the HSPA Experiment Station's objective is to make a thorough study.

Flintkote Promotes Evans

H. L. Evans, former general manufacturing manager of Flintkote Co., has been made vice-president in charge of manufacturing, according to recent report. Mr. Evans, has his office in New York City.

Changes at Crocker-McElwain

Springfield, Mass., June 19—It has just been announced that four executives are leaving the Crocker-McElwain Co. of Holyoke. Frank A. Johnson, general superintendent for 15 years, is retiring. Walter A. Scott, traffic manager for about 34 years now plans to take over a photographic supply business in Holyoke. William Dalrymple will retire July 3, after serving as superintendent for the past 15 years. Godfrey D. Porter, office manager since 1941 and chief accountant since 1926, has resigned to take over the post of research director for the city of Dayton, Fla. as of June 20.

Champion Promotes Sellers and Fagin

R. Fagin

D. Sellers

Champion Paper and Fibre Co., Hamilton, Ohio have promoted Dallie Sellers and Robert Fagin to supervisory positions within the plant's coating mill finishing department.

Mr. Fagin, a Champion employe for the last 27 years, has worked in the finishing department as a trimmer operator. He will assume the responsibilities of shift foreman for the coating mill trimmers.

Mr. Sellers began work for Champion in 1930, as a helper in the firm's calendar room. In his new position, he will supervise the sealing and packing of Champion paper in the coating mill finishing department.

St. Regis Changes

William H. Anders, resident manager of the East Pepperell, Mass. mill of the St. Regis Paper Co. will retire from that position on June 30, but will continue to serve in an advisory capacity at East Pepperell. Mr. Anders was formerly president of the Nashua River Paper Co., East Pepperell, Mass., with which he became associated in 1919. He joined St. Regis when it acquired that company in 1946.

Walter DeLong, a vice-president and director of St. Regis Paper Co. will retire from the position of resident manager in charge of the company's operations at Tacoma, Wash., on June 30. He also will continue to serve in an advisory capacity. Mr. DeLong joined St. Regis in October of 1942.

Jack M. Lamb, who joined St. Regis in 1928 and has been in charge of purchasing at the company's Tacoma operations, has been appointed to succeed Mr. DeLong as resident manager. Robert DeLong has been named assistant to the resident manager at Tacoma in charge of wood procurement.

Fred E. Chittick, who joined St. Regis on July 1, 1943 and has been in charge of woodlands and wood procurement for the company in the northwest, will retire on June 30, but will continue to serve in an advisory capacity.

Robert A. Chase has been appointed resident manager at the East Pepperell mill in succession to Mr. Anders, with Russell Hamilton, heretofore general superintendent, named mill manager. Mr. Chase will continue in charge of kraft sales in the New England area.

Under a company policy effective July 1, 1953 mandatory retirement is required on the part of all employees who have reached 70 years of age or over.

Changes at Fort Orange

Fort Orange Paper Co. made the following changes effective July 1.

Robert S. Harris, senior vice-president and secretary of the company, at his request, has been relieved of carton sales responsibility.

Robert P. Jones was elected vice-president and is to have charge of sales of all of the company's products.

Lorenz W. Peter was elected vice-president and will continue with his responsibilities as plant manager.

In addition to the duties of comptroller, Jay E. Paul will also assume the responsibilities of office manager.

Marshall S. Hannock has been appointed general superintendent.

Robert Van Beusichem has been appointed assistant purchasing agent.

Bemis' Advancements

A. G. Raikes

C. W. Akin

A. F. G. Raikes has been appointed manager of the New York General Sales Division of Bemis Bro. Bag Co., effective August 15. He is presently the assistant director of sales in the company's General Offices in St. Louis.

Mr. Raikes will be succeeded as assistant director of sales by C. W. Akin, who assumed his new duties on July 1. He is now Bemis' supervisor of paper bag sales.

Mr. Raikes joined the Bemis organization at Kansas City in 1938 as a salesman. The following year he transferred to St. Louis as a member of the Trade Extension Department, which was the forerunner of the Bemis General Sales Department. He was appointed assistant director of sales in 1948.

Mr. Akin's career in the bag industry started in 1932 when he joined The Jaite Co., St. Helens, Ore. When Jaite's St. Helens plant was purchased by Bemis in 1941, Mr. Akin became sales manager under Bemis ownership. In 1948 he was appointed supervisor of paper bag sales for the entire company and was transferred to the St. Louis offices.

Mr. Akin's successor as supervisor of paper bag sales will be announced at a later date.

Weinland Named Gen. Mgr.

Richard D. Weinland has been named general manager of purchases for Continental Can Co.

Mr. Weinland, formerly vice-president and director of the Continental Overseas Corp., a subsidiary of the company, will fill the position held by Robert Schrader at the time of his death this year.

Clyde Bloedorn, assistant general manager of the Overseas Corp., will serve as acting manager of the corporation.

Joining the Continental organization in 1932 at the company's Cincinnati plant, Mr. Weinland was transferred to the head office in New York in 1937 to assist in various foreign and export matters. He became manager of the priorities and reports department in 1943 and was named assistant general manager of the Overseas Corp. in 1946. In 1949 he was promoted to general manager, a position he held until 1951, when he was named vice president and director of the Continental Overseas Corp. He also was appointed manager of the company's priorities and price control department in 1950.

D. H. Strickland Joins Sorg

Sorg Paper Co., Middletown, Ohio, has appointed Dean H. Strickland to the Field Selling Department as sales representative.

Before becoming associated with Sorg, Mr. Strickland was sales representative in the Ohio-New York territory for Sackner Products of Grand Rapids, Mich., and prior to that was associated in sales capacities with Central Paper Co., Muskegon, Mich., and Champion Paper and Fibre Co., Hamilton, Ohio.

C-Z Promotions

Crown Zellerbach Corp., has promoted five effective immediately. James P. Towey, formerly general sales manager, Kraft and Sulphite Division, and William J. Zellerbach, formerly manager of Specialty and New Product Sales, were each promoted to assistant to Vice-President G. J. Ticoulat.

Edward P. Partland, formerly assistant general sales manager of the Kraft and Sulphite Division, was promoted to manager of industrial sales. George S. Runyan, formerly assistant general manager and general sales manager of the corporation's eastern division in New York City, was promoted to manager of distributor sales and will transfer to San Francisco. Gene B. MacFarland, formerly staff assistant, Kraft and Sulphite Sales, was promoted to manager of sales promotion.

F. W. Plowman

D. A. Prouty

Paul Brown

Scott Changes

Scott Paper Co. has designated vice-president Francis W. Plowman as assistant to the president and elected D. A. Prouty to the newly created post of assistant vice-president in charge of public relations. Paul Brown will replace Mr. Prouty as national retail sales manager.

The moves are part of the company's program to reach a sales goal of $300 million annually by 1958. Scott's sales of finished paper products for 1952 were $129,168,565, the highest in the company's history.

Since its establishment five years ago, Scott's public relations function has operated as an arm of the advertising department, under the direction of G. A. Duff, manager of public relations, who will continue in this capacity. The public relations function is now a major division of the business and has been placed under the immediate supervision of a member of the president's staff.

Mr. Plowman, a vice-president and director of Scott, has been general sales manager since July 22, 1943. He joined Scott in 1928 and in 1938 was made assistant controller. He entered sales research and promotion in 1940 and when Scott established its subsidiary, Marinette Paper Co., in 1941, he was placed in charge of that division's sales activities.

D. A. Prouty, national retail sales manager, joined Scott in 1926 as a salesman in Chicago. After serving as retail district sales manager in several cities, he was elevated to his present position in 1938. During his tenure as national retail sales manager, Scott's retail sales have increased 730 per cent.

Paul Brown has been with Scott since 1931. He was named St. Louis district manager in 1934, and Los Angeles district manager in 1937. He has been Southern Retail Divisional Sales manager since 1946.

A distribution committee also has been formed to direct and coordinate the company's sales, advertising, marketing research, traffic and related activities. Members of the committee are: J. D. Bowden, manager of marketing research; Paul Brown, retail sales manager; H. R. Hvid, assistant industrial sales manager; Harry C. Pardee, assistant vice-president and director of advertising; and F. L. Witt, assistant industrial sales manager.

Penobscot Names Execs.

The Penobscot Chemical Fibre Co. has named Lynwood S. Hatch a vice-president. William D. Duryea, a vice-president, has been elected to the executive committee. Louis J. Freedman has been elected vice-president, and Charles H. Cornell, treasurer of Penobscot Development Co., a wholly owned subsidiary.

Robbins Head Sales at Fibreboards Eastern Div.

Effective July 1, 1953, H. H. Robbins, Oregon District Sales Manager of Fibreboard Products Inc., has become Sales Manager of Fibreboard Products (Eastern Division) Inc., a wholly-owned subsidiary, with headquarters in Philadelphia. He will be succeeded in the Portland office by Ralph S. Lau, who has been a sales representative in the Oregon District for eight years.

NEW EQUIPMENT AND SUPPLIES

Hydraulic Surface Grinder

Hill Acme Co., 1201 West 65th St., Cleveland 2, Ohio, has introduced a new line of Cleveland Hydraulic Surface Grinders for resharpening bevel edge cutting and trimming machine knives. These grinders are said to employ a new grinding principle that eliminates the hazard of knife burning.

They are especially recommended for finishing or regrinding bevel on high alloy machine knives — chipper knives, paper knives, doctor knives, etc. The wheel head of the grinder is arranged to tilt from the vertical position so that the plane of the grinding wheel is at an angle to the work when the outside rim of the grinding segments is brought into contact with the knife being ground.

According to the manufacturer's description, it is not necessary for the operator to employ constant down feed for bevel grinding, since after the vertical wheel head is initially fed into the work, unusually sharp, fast, cool and continuous cutting action takes place because, 1. The grinding wheel is off center as the vertical wheel head is fed into the work by the operator. 2. The grinding wheel continues to feed (horizontally and automatically) across the work. 3. Grinders are equipped with hydraulic table drive which reciprocates at low pressure through two opposing pistons.

A bulletin of complete information is available from the maker.

Self-Loading Log Truck

To facilitate salvaging of good sawtimber which has been felled by wind or beetle girdling and would otherwise be left to rot, Roy Menteer, P.O. Box 504, Medford, Ore. has developed a steel boom hoist for mounting on log trucks to permit yarding and loading of the stray logs with no other manpower than the truck driver and one helper. The device is known as the Triplex Salvage Unit.

The unit consists of a chain drive rear end, a Chevrolet 105 engine, 15-ton winch, and a 10-foot steel A frame boom behind the truck cab. All parts are mounted on a reinforced 26½ foot frame. A manually operated jack, built into the boom, helps get clearance when needed. A power take-off on the transmission case gives life to the loading line.

According to report, one two-man team can often bring in two loads of 16-foot salvage logs a day. Payloads average about 4000 board feet and have run as high as 6240 board feet. Trucks equipped with the unit have made profitable hauls at ranges as far as 65 miles, it is said. Under favorable circumstances, the device will yard big logs up to 300 feet away from the truck. It regularly handles logs 100 feet away.

Precision Switches

Two new precision snap-action switches, designed for one-way actuation by cams, dogs, or slides, are now being fabricated by Micro Division, Minneapolis-Honeywell Regulator Co., Freeport, Ill. They are particularly recommended for providing an electrical impulse to relays or solenoids from one direction only of a reciprocating movement.

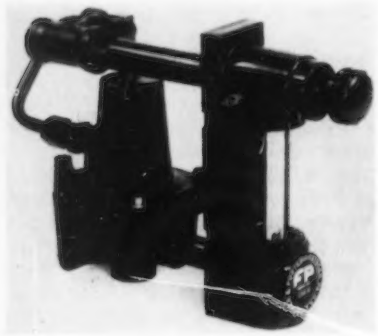
These switches have spring loaded, hinged roller arm actuators. Contact arrangement of both switches is single-pole, double-throw, and each is available with either solder lug terminals or screw terminals. They carry Underwriters' listing for 15 amperes at 125, 250, or 460 volts, a.c.; ½ ampere at 125 volts, d.c.; ¼ ampere at 250 volts, d.c.

Emulsion Adhesive Bonds Without Heat

Said to provide strong, heat-resistant bonds to paper and many other surfaces, an emulsion adhesive known as Arco 1294-31L is now being produced by American Resinous Chemicals Corp., 103 Foster St., Peabody, Mass. It is a wet-stick adhesive not possessing dry-tack properties, and is offered especially to users who do not have curing temperatures available. Mild heat may be used to promote bonding but is not essential, it is said.

Ordinary procedure for applying, calls for costs of the adhesive on one or both surfaces and the formation of the bond within one minute. Resistance to temperatures up to 300 degrees F. for intermittent periods is claimed for the material.

The manufacturer's data sheet lists the following specifications for the adhesive: viscosity, 40 to 45 thousand cps.; total solids, 38.8 per cent; color, dark brown; weight, 8.5 pounds per gallon. Among a number of other uses, the material is being employed to bond paper to adhesives, plastic film, and fabric.



Meter For Purge Flows And Liquid Level Measurement

A small flowmeter, called the Purgerator, designed for metering the flows of purge fluids or for liquid level gauging has been developed by Fischer & Porter Co., 14 Jacksonville Rd., Hatboro, Pa. It can be used at pressures up to 300 p.s.i., and various models, each having a 10:1 operating range, are available to cover selected flow ranges between 0.05 c.c. per min. and 0.65 g.p.m. of water or between 5 c.c. per min. and 0.90 scfm of air.

Features of the meter are said to be: (1) horizontal inlet and outlet connections which permit the meter to be mounted either in front of or behind an instrument panel; (2) stainless-steel threaded inserts in the inlet and outlet connections to insure thread strength and leak-resistant connections; (3) precision-bore borosilicate metering tube for high metering reproducibility.

The unit is 4 3/8 in. long. The meter body is made from glass-fiber reinforced phenolic; the flow-controlling needle valve and valve seat are of stainless steel. Ball floats are of either colored glass or 316 stainless steel, depending on meter type and capacity.

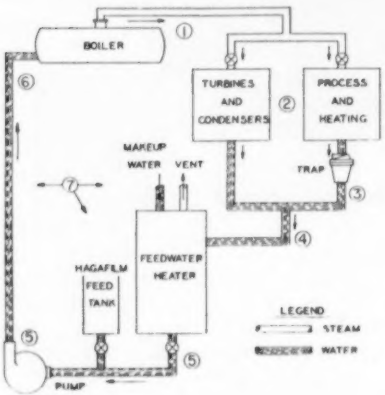
Recommended applications are for metering the flow of purge fluids to manometer lead lines and to the extension wells of other metering devices. It also can be used as the metering component of bubble type liquid level measuring systems. Catalog 29 is available from the manufacturer.

Lift Truck With Torque Converter Drive

Towmotor Corp., 1226 East 152nd St., Cleveland 10, Ohio, announces its line of fork lift trucks can now be supplied with an automatic torque converter drive, known as the Towmo-Torque Drive.

The drive employs a heavy-duty, air-and-oil cooled torque converter in a capacity range to match the requirements of the various fork lift truck power plants. Faster, smoother operation is said to be furnished through a duplex directional designed clutch teamed with a constant-mesh gear train. Forward or reverse movement is controlled from a hand lever on the steering column.

Where exact positioning or careful maneuvering of a truck is desired, a creep control pedal permits "inching" of the truck and accelerated lifting of the carriage. This device also acts as an emergency drive-stop.



Film-Forming Amine For Corrosive Condensate

Hagafilm is a film-forming amine for controlling corrosion that is the result of the presence of oxygen and acid carbon dioxide in steam condensate systems. The material is being offered by Hagan Corp., Hagan Bldg., Pittsburgh 30, Pa.

The material, fed to the boiler in small amounts (on the order of two or three pounds per million pounds of steam), vaporizes with the steam and deposits a very thin, non-wettable film on all metal surfaces wherever condensation occurs and throughout the return system.

Specific advantages claimed for the product are diagramed above; when added to feedwater (1): it protects heat transfer surfaces and return piping against corrosion (2); reduces trap maintenance (3); keeps lines clear (4); improves valve and pump operation (5); minimizes transfer of iron to boiler (6); and contributes to protection during standby periods (7).

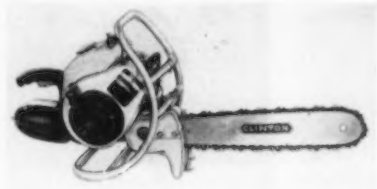
The material is supplied in both solid and liquid form. The solid is readily mixed with hot condensate to make a dispersion for feeding. The ready-mixed liquid emulsion may be more convenient for some boiler plants, particularly where needs are relatively low. More information is contained in a bulletin obtainable from the manufacturer.

Controller With Anticipating Action

An indicating controller featuring anticipating action has been placed in production by Wheelco Instruments Div., Barber-Colman Co., Rockford, Ill. Known as Capacitrol, Model 221C, it employs the company's electronic link device plus the anticipating action, to give unvarying "straight line" control of process heat.

The unit anticipates the approach and departure of temperatures caused by various heat transfer lags and load requirements. This is accomplished through a unique resistor network and relay circuit. The electronic link provides control with no contact between the measuring and control system, through a high resistance galvanometer movement. Interchangeable voltage plugs are provided for 115 and 230 volts a.c.

A thermocouple or a resistance bulb may be used as the sensing element. When a resistance bulb is used, a standardizing unit is added to the instrument. Four other units have been added to this Model 200 line of controls: two for regular on-off control and two for proportioning control. Complete information is available in manufacturer's bulletin F 5783.



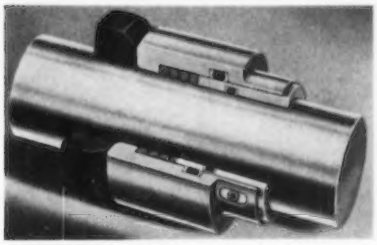
Light-Weight Chain Saw

Chain Saw Div., Clinton Machine Co., Clinton, Mich. announces a new model Clinton Chain Saw which is said to feature lighter-weight, increased cutting speed, and a quick-starting engine.

The manufacturer lists construction features as: two-cycle, air-cooled gaso-

line engine; steel forged crankshaft; anti-friction bearings throughout; float-type carburetor; aluminum main castings; steel guide bar; router-type sawing chain; automatic clutch; and positive chain oiling.

The unit is designed for boring, under-bucking, riping, or angle cutting. Swivel control permits fast shifts to either vertical or two horizontal positions.



Improved Pump Seal

Simplicity of design is said to feature the "O" Ring Mechanical Seals for rotating pump shafts, now being offered by Garlock Packing Co., Palmyra, N. Y. It is further claimed that the small number of parts in this improved seal permits easy adapting of its fabrication to produce a seal that will withstand any liquid, whether mild, harmfully corrosive, or extremely hazardous.

The seals are made to provide leakless operation of rotary shafts on centrifugal pumps handling chemicals, pulp liquors, petroleum products, etc. They are furnished in type O, an unbalanced seal for pressures up to 200 p.s.i., and in type OB (illustrated above), a balanced seal for pressures up to and over 1000 p.s.i. Both types can be supplied with single spring or multiple spring, and in either pin-drive or sleeve-drive construction.

Type O seals are furnished for packing spaces 5/16 inches and larger and in some cases for ¼ inch spaces. Type OB is for spaces ⅜ inches and larger. The rings are available in teflon, buna-N, neoprene, or silicone. Metal parts in contact with the liquid can be supplied in any suitable metal.

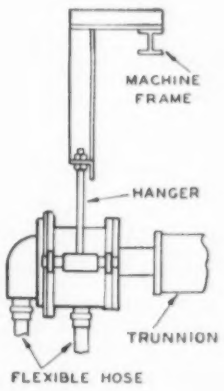
Slime Control Agent

Approximately a year ago, the research laboratories of United States Movidyn Corp., 863 N. Orleans St., Chicago 10, Ill., began exploring the possibilities of developing a special formulation containing Movidyn (the company's activated silver compound) for use as a slime-controlling agent in the pulp and paper industry. The Institute of Paper Chemistry, Appleton, Wis., was consulted to ascertain specialized needs of the industry, and these needs were incorporated into the criteria established for evaluation of experimental formulations. The prime aim was to develop a formulation having superior biological activity against the micro-organisms causing slime-formation in pulp and paper mils.

The reslearch and development program incorporated studies in two general categories, chemical studies and biological studies. Following these laboratory studies a successful slime control agent designated as A-36 was developed, which was subjected to field tests.

The combined laboratory and field test results were subjected to careful analysis and it was decided that "A-36" should be offered to the pulp and paper industry. Commercial production of this material has been initiated, and "A-36" is now available in limited quantities.

The laboratories of the manufacturer are prepared to offer technical services to individual members of the pulp and paper industry on a no cost basis for evaluation of specific slime-control problems. These services include: complete biological analysis of process stocks and recommendations concerning microbiological control programs.



Rotary Pressure Joint With Adjustable Hangers

Availabality of Type "L" Johnson Rotary Pressure Joints in all sizes of the company's standard joints has been announced by the Johnson Corp., Three Rivers, Mich. These joints are used to introduce steam and other machine dryer rolls, and they can now be specified with adjustable hangers for suspension support.

By the use of such hangers, attached to the rods of the "L" (see cut), the joint can be suspended from the angle iron machine frame, wherever special conditions make such installation desirable.

The joints are built with lugs cast on the bodies to permit the use of these support rods. In this manner, the weight of the joint proper and its steam and condensate connections is removed from the sealing mechanism. The entire assembly is floated within the housing. Type "L" joints are available for use with stationary or rotating syphon pipes.

Hammond Paper Co. Establishes Bag Plant in Charlotte, N. C.

The Hammond Bag & Paper Co., operator of a jute liner mill in Wellsburg, W. Va., has announced the establishment of a plant in Charlotte, N. C. for the production of paper bags.

The plant occupies 15,000 square feet of floor space and is designed to permit construction of three additions, which will eventually take 45,000 more square feet. Most of the converting machinery has already been installed, and production is scheduled to start about mid-July.

At the outset, the plant will employ about 35 workers. General manager of production will be Robert C. Barnes, formerly assistant sales manager for Hammond.

John H. Schroeder Joins Arthur Schroeder

John H. Schroeder, having recently graduated from Syracuse University, has joined the Sales Staff of the Arthur Schroeder Paper Co., Inc., in New York.

Associations

(Continued from page 27)

Don had been associated with the Racquette River Paper Co. ever since he had been Secretary of the Sulphite Assn., which was over twenty-one years, during which time, there had always been a representative of that company on the board of the association, first Rufus Sisson and then Don McCall since 1948. Not only had Don served as General Chairman during the past eighteen months, but previously as Chairman of the Unbleached and Manila groups, for two years each "stretch."

TAPPI Moves

On and after July 1st the office of TAPPI will be located at 155 E. 44th Street, New York 17, telephone Murray Hill 2-8313.

PRICES

MARKET WOOD PULP

Third Quarter Contract Prices Per Short Air-Dry Ton

	Delivered Basis		Varying Freight Allowances		
	U. S.	Canadian	Swedish	Finnish	Norwegian
Groundwood		‡$60.00/ 90.00			
Sulphate, Bleached	140.00/147.50	145.00/155.00	137.50/142.50§		
Semi-bleached Sulphate	135.00/140.00		§127.50/130.00		
Sulphate, Unbl.	90.00/110.00	100.00/125.00	100.00/105.00*	105.00/135.00*	
Sulphite, Blchd.	140.00/ —	140.00/ —	§130.00/135.00	140.00/ — *	140.00/145.00*
Sulphite, Unblchd.	120.00/ —	120.00/ —	§110.00/ —	120.00/125.00*	
Sulphite, Unbl. Glassn.		124.00/ —	§115.00/ —		
Soda, Blchd.	140.00/ —	140.00/ —			

† Midwestern Markets. ‡ F.o.b. Shipping Point. § On Dock Atlantic Ports * Freight allowed.

RAG MARKET

New Domestic Cotton Cuttings

Delivered Mill Basis

	Per 100 lbs
No. 1 White Shirts	$13.25/$13.75
No. 1 Unblchd. Muslins	14.25/ 14.75
Blchd. & Unblchd. Underwears	14.50/ 15.00
Blchd. Canton Flannels	11.00/ 11.50
No. 1 Light Silesias	8.00/ 8.50
No. 1 Light Prints	6.50/ 7.00
No. 1 Blue Overalls	7.00/ 8.00
Suntan Khakis	8.00/ 8.25
Fancy Shirts	6.50/ 6.75
Mixed Khakis	4.00/ 4.25
Cottonades	4.50/ 4.75
No. 1 Washables	4.00/ 4.25

Old Domestic Cotton Rags

(Prices to Dealers, F.o.b. Ship. Pt.)

	Per 100 lbs.
Mixed White	$3.00/$3.50
Cotton Pants & Overalls	2.25/ 2.50
Thirds and Blues, Repacked	1.75/ 2.00
No. 1 Roofing Rags	1.00/ 1.05
No. 2 Roofing Rags	90/ .95

COTTON LINTERS

Memphis Market

F.o.b. Oilmills

		June 23 Per 100 lbs.
Grade 1	n.a.	
2		$12.50/$10.50
3	1st cut—felting	10.00/ 8.50
4		8.00/ 5.50
5		5.00/ 4.50
6	* 2nd cut—chemical	4.25/ 4.00
7		4.00/ 3.75

* Based on 73% cellulose.

Bagging

(Prices to Dealers, F.o.b. N. Y.)

	Per 100 lbs.
Foreign Gunny	$4.00/$4.25
Heavy Wool Tares	4.00/ 4.25
Foreign Scrap Burlap	2.75/ 3.00
Austr. Wool Pouches	5.00/ 5.50
Domestic Manila Rope	6.50/ 7.00
No. 1 Sisal Strings	5.00/ 5.25

WASTE PAPER MARKET

Prices to mills, per ton, f.o.b. cars shipping point (includes brokers' fee.) These quotations are a partial indication of the price range on volume tonnage in each market on the date specified, as gathered from major dealers. SPECIAL PACKINGS AND SPOT TONNAGE NOT INCLUDED. Prices nominal. See TRENDS.

	N.Y.-Phila. June 22	Boston June 22	Chicago June 22	Los Angeles June 1
No. 1 Mixed Paper	$9.00/ 10.00	$9.00/ 10.00	$8.00/ —	$15.00/ —
No. 1 News	12.00/ 13.00	12.00/ 13.00	14.00/ —	15.00/ —
Overissue News	18.00/ 20.00	12.00/ 17.00	17.00/ —	15.00/ —
Mill Wrappers	12.00/ 14.00	12.00/ 15.00	11.00/ —	14.00/ —
Old Corrugated	20.00/ 23.00	19.50/ 20.00	20.00/ 23.00	21.00/ —
Double Kraft Ld. Corr. Cuts	35.00/ 47.50	42.50/ 47.00	45.00/ 47.50	35.00/ 45.00
100% Kraft Corr. Cuts	45.00/ 60.00	45.00/ 60.00	60.00/ —	45.00/ —
No. 1 Brown Kraft	30.00/ 35.00	31.50/ —	30.00/ —	45.00/ —
Triple Sorted Brown Kraft	40.00/ 45.00	36.50/ 40.00	— / —	— / —
New Br. Kraft Env. Cuts	60.00/ 70.00	60.00/ 75.00	60.00/ —	50.00/ 55.00
New Br. Kraft Bag Cuts	50.00/ 55.00	55.00/ 60.00	65.00/ —	40.00/ 45.00
No. 1 Gdwd. Shvs.	20.00/ 30.00	**25.00/ 35.00**	19.00/ —	27.00/ —
White Newsblanks	50.00/ 60.00	**50.00/ 65.00**	**45.00/** —	55.00/ 60.00
No. 1 Soft Wht. Shvs.	55.00/ 65.00	65.00/ 75.00	50.00/ —	— / —
Hd. Wht. Shvs.	85.00/100.00	80.00/ 95.00	85.00/ —	100.00/ —
Hd. Wht. Env. Cuts	110.00/125.00	110.00/120.00	100.00/ —	110.00/ —
Col. Tab. Cards	45.00/ 55.00	55.00/ 60.00	40.00/ —	24.00/ —
Manila Tab. Cards	65.00/ 75.00	75.00/ 80.00	70.00/ —	47.50/ —
Mixed Ledger	30.00/ 40.00	30.00/ 35.00	45.00/ —	26.00/ —
White Ledger	50.00/ 60.00	57.00/ 60.00	60.00/ —	40.00/ —
No. 1 Book & Mag.†	nominal	12.00/ 16.00	15.00/ —	— / —
No. 1 Rep'd. Hvy. Books‡	nominal	25.00/ 35.00	27.50/ —	— / —

† Includes Time & Life; no coarse groundwood. ‡ Not to exceed 10% groundwood. § Deld.

MATERIALS

Aluminum sulfate:		
cml. bags, c.l. wks.	cwt.	$1.85 / —
iron-free, c.l. wks.	cwt.	3.55 / —
Casein, acid prec.:		
dom. sh. pt. c.l.	lb.	.28 / .37½
imp. ex. dock	lb.	.16 / .23
Caustic soda:		
c.l. wks. solid, 76%	cwt.	3.70 / —
flak. & grd. 400-lb drums, c.l.		4.10 / —
liquid 50% tanks		2.55
liquid 70% tanks		2.65
China clay:		
dom. air-float, c.l. wks.	ton	10.00
water-washed, lump, filler		11.00
coating		17.60 /30.50
imported, ex. whse.	short ton	16.00 /29.50
Chlorine:		
single-unit tanks, works.	cwt.	2.93 / 3.03
multiple unit, 2-3 cars per yr.		4.00 / 5.10
Formaldehyde:		
USP, inh. dms. c.l. wks.	lb.	.0666/ —
l.c.l., E. wks.		.071 / —
Fuel oil:		
Bunker C, No. 6 hvy. tanks, N.Y. harbor	bbl.	2.13 / —
Lime:		
hydrated bags, wks.	tons	14.50 /15.50
Gum rosin:		
K, M, N, drms, c.l. Savan.	cwt.	7.30 / 7.42
Rosin size:		
70%, gum & pale grds., tank cars, south, sh. pt.	cwt.	6.50 / 6.60
Salt cake:		
dom. bulk, c.l. wks.	ton	19.00 / —
Soda ash:		
light, 58%, bags, wks.		1.65
bulk	cwt.	1.35
Sodium silicate, 40° Be.:		
tank-cars, wks.	cwt.	1.00 / —
drums, wks.	cwt.	1.35 / —
42° Be. WW, tanks-cars, wks.	cwt.	1.60 / —
drms, wks.	cwt.	1.95 / —
Sodium peroxide:		
dms. c.l. E. of Miss.	lb.	.186
l.c.l. do.	lb.	.191 / .201
Soybean, protein:		
chem. isol, wks., c.l., bags.	**lb.**	**.23½/ .24¾**
Sulphuric acid:		
60° Be. cbys. c.l. wks.	cwt.	1.75 / 2.00
l.c.l. wks.	cwt.	2.30 / 2.45
tankcars, wks.		16.30 /18.60
Sulphur:		
crude, c.l. mines, contract,	**long ton**	**25.50 /27.50**
f.o.b. vessels Gulf		27.50 /30.50
Sulphur dioxide:		
liquid, coml. cyl. wks.	**lb.**	**.09**
multi-unit cars†	**lb.**	**.0535**
Starches:		
pearl corn, bags, c.l. prod. plant		**6.39 / —**
white, dextrines, c.l. do.	**cwt.**	**7.78 / —**
potato, Idaho, c.l. wks.	**cwt.**	**8.50 / —**
potato, Maine, f.o.b. wks.	cwt.	7.00 / 7.25
potato, imported O.D.	bags	**7.50 / 8.65**
Talc:		
domestic, sacks, c.l. wks.	ton	25.00 /30.00
Titanium dioxide:		
anastase, c.l. deld., bags.	lb.	.21 / .21½
l.c.l. deld.	lb.	.22 / .22½
rutile, c.l. deld.	lb.	.23 / .23½
l.c.l. deld.	lb.	.24 / .24½

NEWS OF SUPPLIERS

Wyandotte Chemicals Corp.'s New Research Center—Maintained for research on the use of Wyandotte products in the paper industry, the laboratory includes the more common items of equipment including a super calendar for finishing coated papers and many instruments for physical evaluation of paper and coatings.

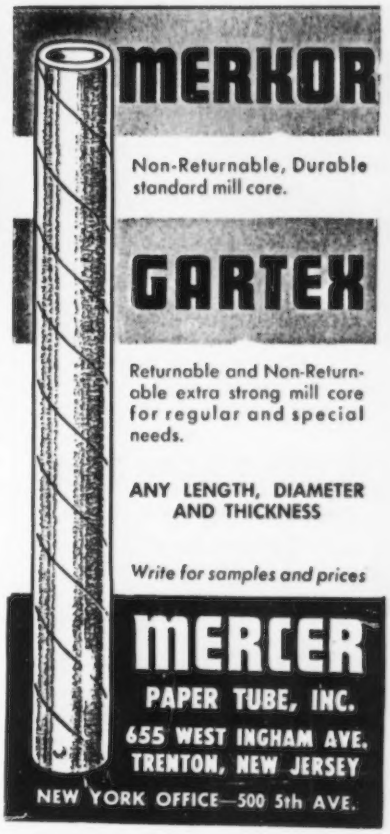
BLACK-CLAWSON CO. will manufacture and sell four major items of Cowles Co. stock preparation equipment on a licensing arrangement completed this week between Black-Clawson and the Cowles Co. of Cayuga, N. Y.

The products covered by the new licensing agreement include: The "Aquapulper", a unit to slush and defiber paper stock; The "Beatapulper", a combination batch pulper and refiner that slushes, defibers and refines paper stock all in one operation; The "Classapulper", a new continuous pulper of virgin or waste paper stock which will extract foreign materials from the pulped stock; and the "Knifemill", a refiner-type unit which will completely defiber, cut and refine slushed paper stock in either batch or continuous systems.

These four Cowles developments are immediately available, and will be built by the Shartle Bros. Machine Division of Black-Clawson at Middletown, Ohio.

Under the licensing agreement the Shartle Division will sell and manufacture the "Aquapulper" under the name of Hydraslusher and the "Beatapulper" under the trade name of Hydrabeater. No more changes are immediately contemplated for the Classapulper and Knifemill.

PABST BREWING CO., Milwaukee, and MORNINGSTAR, NICOL, INC., New York City, announce that the latter firm has been appointed exclusive distributors to the Paper Industry of the new Pabst starch converting enzyme called "Amizyme." The Morningstar Paper Dept., headed by Jerry Strasser, will assume responsibility for the sales and technical servicing of the new enzyme on a nation-wide basis immediately. To assist in the field development, the Morningstar Paper Dept., recently appointed Herbert Gardner, former Paper Mill Dept. Chemist of Pabst Brewing Co., as a technical sales service engineer in the Middlewest territory. The Pabst grade of enzyme is specially selected to produce liquefaction or dextrination of starch in such a manner as to produce high dispersibility of the starch with a minimum production of sugar. Amizyme is described as an Alpha Amylase of exceptional uniformity, making it possible to use automatic processes in conversion. Converting procedures are worked out to fit the requirements of individual mills and control methods are simplified to keep supervision of continual processing at an economical low level.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C. Mackenzie

R. P. Wood

AMERICAN CYANAMID CO., Calco Chemical Div., has appointed Cameron Mackenzie as branch manager, Dyestuff Department of the Boston District office and Robert P. Wood as branch manager of the Providence District office.

G. E. Medlock

STEARNS MAGNETIC INC., Milwaukee, Wis., have appointed Gordon E. Medlock, formerly assistant sales manager, as sales manager.

Associated with the company since 1946, Mr. Medlock will be responsible for the sales of the company's complete line of magnetic separation and power transmission equipment.

HOOKER ELECTROCHEMICAL CO. has announced the appointment of the following men to new positions in the sales department at Niagara Falls, N. Y.

Frederick W. Bonacker, Jr. and Gregory J. Perreault will handle technical correspondence in the technical service office; Victor M. Morgan and Julian J. Boyce have been transferred to the product scheduling office; and Joseph A. Lenahan has been transferred to sales records.

WESTINGHOUSE ELECTRIC CORP. will supply all electrical equipment for three log-handling gantry cranes for the new mill now under construction by Bowaters Southern Paper Corp., Calhoun, Tenn.

Regulated by full magnetic control equipment, two of the cranes will team up to reclaim wood from a new type of underwater storage system—a circular pond of 237 feet radius in which barked logs are submerged, layer upon layer.

The grapple of each log-reclaiming crane will be able to handle approximately 1½ cords of pulpwood on a 109-second cycle to reclaim 41 cords of wood per hour.

The third crane will be used to unload logs from rail cars, barges, and trucks. All three cranes will be built by the Link-Belt Co., Colmar, Pa.

Each crane will have one 100 hp motor and one 40 hp motor to power the grapple, one 40 hp motor to power the trolley, and two 7½ hp motors to move the gantry. The power source will be a 440 volt, 3 phase, 60 cycle, a-c supply.

TECHNICAL ASSOCIATES, 71 Grove street, Paterson 3, N. J., has been formed as consultants in the fields of felt, paper and insulation board manufacture.

AMERCOAT CORP., manufacturers of protective coatings for industrial and marine application, has re-located its branch offices and warehouse in new and larger quarters at 6530 Supply Row, Houston, Texas.

Lucien L. Miner, Amercoat District Manager, will be in charge of operations at the new location. Amercoat formerly maintained its south central branch at Dallas. The company's home office and plant are located at South Gate, Calif.

ORTON CORP., Fitchburg, Mass., has been appointed sales representative for the Moore & White Co., Philadelphia, manufacturers of custom papermaking machinery.

The Fitchburg firm, S. T. Orton, Jr., president, will handle Moore & White equipment and machinery in Maine, New Hampshire, Vermont, Rhode Island, Massachusetts, and Connecticut.

R. M. Junker

GOODYEAR TIRE & RUBBER CO.'s Industrial Products division, has appointed R. M. Junker manager of the newly combined departments of Tank Lining and Industrial Roll Sales.

He joined the company in 1942 and was assigned to the efficiency department, later doing wage analysis. He served in the U. S. Navy from 1944 until 1946 when he returned to Akron and joined Goodyear's Tank Lining Sales staff. Mr. Junker was appointed manager of Industrial Roll Sales in 1948.

GENERAL ELECTRIC CO. has announced its establishment of a direct-current motor and generator department. The news was revealed by James M. Crawford, vice-president and general manager of the G-E Motor & Generator Division.

Oscar L. Dunn, appointed general manager of the new department which will be located in Erie, Pa., explained that it will assume all duties and responsibilities of the company's former D-C Motor and Generator Planning Study.

In addition, he said, the department will have responsibility for the d-c and synchronous motor and generator lines which are now manufactured by the company's large motor and generator department at Fort Wayne, Ind., and the armored motor line produced at Erie by the medium induction motor department.

The following were appointed by Mr. Dunn to key posts in the new organization: Paul D. Ross, manager of marketing; Richard M. Hartigan, manager of employee relations; Paul S. Stough, manager of engineering, Louis E. Wengert, manager of finance; and Francis J. Boucher, manager of manufacturing.

HARRIS-SEYBOLD CO., through its special products program, has made available to its customers three models of Rogers knife grinders.

The Models NL and NT and the Series 220 heavy duty grinder, which are manufactured by the Samuel C. Rogers Co. of Buffalo, N. Y., will be sold and serviced through the nationwide Harris-Seybold distribution organization. The three models are priced from $2,892 to $13,700, f.o.b. Buffalo. Capacities range from 50 to 134 inches.

It was also announced that the Seybold knife grinder is being discontinued to release production capacity at the Dayton plant to new products. Parts and service will be continued through 16 district and branch offices in the United States and Canada.

AMERICAN PAPER AND PULP ASSOCIATION'S PAPER PRODUCTION RATIO REPORT

(Production as per cent of normal capacity)

COMPARATIVE WEEKLY SUMMARIES

1953	May 23 93.9	May 30 92.0	June 6 94.0	June 13 93.7r	June 20 93.8
1952	May 24 88.9	May 31 83.6	June 7 87.8	June 14 88.5	June 21 88.6

COMPARATIVE MONTHLY SUMMARIES

Year	Jan.	Feb.	Mar.	Apr.	May	June	July	Aug.	Sept.	Oct.	Nov.	Dec.	Year Avg.
1952	97.1	97.8	95.1	90.4	87.9	87.6	73.3	86.1	81.7	90.7	90.5	85.3	88.6
1953	94.5	94.6	94.8‡	93.2‡	93.9‡								

COMPARATIVE YEARLY SUMMARIES

	1946	1947	1948	1949	1950	1951	1952	1953
Year to Date	100.4	105.5	100.0	87.6	95.7	101.7	93.9	94.2
Year Average	96.9	101.7	92.1	83.7	95.8	98.0	88.6	

‡ Preliminary.
r Revised.

PAPERBOARD OPERATING RATIOS †

1953	May 23 96	May 30 97	June 6 87	June 13 98	June 20 98
1952	May 24 83	May 31 79	June 7 75	June 14 86	June 21 85

Year	Jan.	Feb.	Mar.	Apr.	May	June	July	Aug.	Sept.	Oct.	Nov.	Dec.	Year Avg.
1952	81	86	85	82	82	82	71	89	88	96	96	85	85
1953	91	95	95	95	96								

All of the above data is based on tonnage reported to American Paper and Pulp Association. Does not include mills reporting to National Paperboard Association, except in isolated cases where both paper and paperboard are produced and separate tonnage figures are not readily available. Does not include mills producing newsprint exclusively.

Note: In the above tables *all* the ratios shown are on the basis of a normal 6 and 7 day capacity.

† Per cents of operation based on "Inch-Hours" reported on a 6-day basis to the National Paperboard Association.

Supplying Your Requirements

AMERICA'S LEADING INDEPENDENT WASTE PAPER PACKERS

WASHINGTON, D. C.
CAMDEN, N. J.
NEW YORK, N. Y.
MINNEAPOLIS, MINN.

THOMAS PAPER STOCK COMPANY
1500 No. Hooker Street • Chicago 22, Ill.

PAPER TRADE JOURNAL CLEARING HOUSE PAPER TRADE JOURNAL

RATES FOR ADVERTISING (PAYABLE IN ADVANCE) $.75 cents per line (6 words to line) minimum charge $3.75 —Additional charge of 70 cents if box number is used

Situation wanted advertisements can be repeated for ½ rate

Space in this section can also be purchased at $5.00 per column inch—(1" x 2¼)

Address replies to advertisements appearing under Box Number in care of **PAPER TRADE JOURNAL, 15 West 47th Street, New York 36, N. Y.**

HELP WANTED

HELP WANTED

CHEMIST

For mill making high grade white and colored specialties. Splendid opportunity with old established company in the midwest. For full information reply giving age and previous experience. Address Box 53-263 care Paper Trade Journal.

J-17

MEN WANTED — POSITIONS OPEN

We can place—Executive for paper converting and bag mfg., preferably one strong in printing, attractive salary; mgr. mill making lightweight and specialty machine glazed papers; gen. supt. board mill; supt., chemists and technical directors for mills making kraft liner board, semi-chemical .009 and bleached food board; asst. supt. or technical director for board mill; purchasing agent.

Master mechanics, millwrights and machinists; power plant supervisor, $8,000 to $10,000 a year; chemists, laboratory men and chemi. engineers; foreman finishing and shipping; man preferably with chemical background for quality control in paper bag mfg.; technical man or engineer familiar with operational problems on polyethylene extrusion on paper, also skilled machine operator for the same.

Colorists and color mixers; coating div. foreman; salesmen; Cylinder and Fourdrinier mach. foremen; machine designers and draftsmen; machine tenders and back tenders.

LIST YOUR APPLICATION WITH US. IT WILL BE CONFIDENTIAL.
CHARLES P. RAYMOND SERVICE, Inc.
294 Washington St., Boston 8, Mass.
Phone: Liberty 2-6547

J-3

WANTED
Working Superintendent

For one machine folding boxboard mill always running full time. Must be thoroughly experienced on all grades, quality and cost conscious, and able to train inexperienced help. This is a tough factory job but one offering excellent pay plus a very attractive bonus. Outline full qualifications and background in first letter.

Box #53-258 care Paper Trade Journal.

J-3

SUPERINTENDENT—MILL MANAGER

Full supervision of plant. Qualified experience. Seven Cylinder Board Machine, Folding Box, Set-Up Box, Specialty Boards. New England Area. Send complete references. All replies kept confidential. Reply Box 53-264, c/o Paper Trade Journal. J-24

WANTED

An engineer or skilled machine operator thoroughly familiar with and experienced in the extrusion of polyethylene film on paper. State experience, family situation, past earnings and expected compensation. Reply to Box 53-266 care Paper Trade Journal. J-17

SALES REPRESENTATIVES WANTED

Immediate opening in our Sales Organization for a Sales Representative in New England states to sell our Chemical Specialties to the Pulp and Paper Mills and Paper Converting Plants. Excellent opportunity for a man who is willing to work and travel. Paper Mill and/or Chemical background desirable but not essential. Sales experience or Sales Inclination necessary. Salary, Commission and Traveling Expenses. Replies should state clearly age, training and all experience leading to the requirements indicated. All applications treated confidentially. Replies to Box 53-250 c/o Paper Trade Journal. J-3

WANTED—Chemical Engineer or Chief Chemist for a national organization with a mill in the Midwest, producing .009 corrugating medium.

Experience in actual pulp and paper mill operation including quality control. Experience in stream pollution control desirable.

Reply in longhand and include photograph, personal data, educational history, industrial history, and starting salary expected. All replies will be held in strict confidence.

Write Box No. 53-228 care Paper Trade Journal. Jy-3

Mechanical Engineer

Pulp mill located in north Florida now expanding offers excellent opportunity for an experienced M.E. Salary commensurate with ability. Our engineers know of this ad. Write Box 53-245 care Paper Trade Journal.

J-10

CHEMICAL ENGINEER

Pulp mill located in north Florida now expanding offers excellent opportunity for a recent graduate or experienced Ch.E. Salary commensurate with ability. Our engineers know of this ad. Write Box 53-253, care Paper Trade Journal.

J-17

PERSONNEL SERVICE ASSOCIATES

115 State Street, Springfield 3, Mass.

SPECIALIZED PLACEMENT SERVICE

for the Pulp, Paper and related Industries. Attractive positions for Administrative, Technical and Sales personnel always listed. Competent men always registered. Inquiries welcome. Confidential. J-3

HELP WANTED

WANTED
Paper Mill Manager

To assume full responsibility of operating a two machine mill, making rag content papers, located in East. College technical training necessary —age 30 - 45. Excellent opportunity for qualified man. Applicant should submit complete information in training, experience and salary expected. All replies will be held confideatial. Address Box 53-246 care Paper Trade Journal.

JY-3

FINE PAPER MANUFACTURER with national distribution, wishes to expand their sales force. Advise experience, references, pay wanted, willingness to travel. Apply to Box 53-259 care Paper Trade Journal. J-3

SITUATIONS WANTED

CHIEF ENGINEER with 20 years of experience in steam power plant operation and maintenance and a good technical background in engineering, wants a position as chief engineer in charge of steam operations. First class license. Good references. Address Box 53-241 care Paper Trade Journal. J-3

SUPERINTENDENT—With proven operating ability—sound practical and basic technical experience. Yankee or Fourdrinier type Machines manufacturing light and heavy specialized grades from chemical and mechanical pulps. Good knowledge of stock preparation. Middle age. Good health. References. Address Box 53-200 care Paper Trade Journal. Jy-17

SUPERINTENDENT—Twenty six years of practical experience manufacturing high grade folding box board, frozen food cartons, other sanitary food packages from sulphite, sulphate, groundwood, old paper stock. Aggressive, capable man. Excellent references. Address Box 53-199 care Paper Trade Journal. J-17

FOR SALE

FOR SALE

2—Complete single cylinder Machines.

86" Trim

48" dia. mold and vat Suction drum roll, 2 main presses, Smooth Press. 41—36" dia. dryers, 2 calender stacks, Beloit reel, Slitter and Winder..

72" Trim

48" dia. mold and vat, Suction drum roll, 2 main presses, Smooth Press. 35—36" dia. dryers, 2 calender stacks, Beloit reel, Slitter and Winder.

BLACK-CLAWSON COMPANY
Shartle Brothers Machine Division
Used Equipment Dept.
Middletown, Ohio

J-3

DEINKING, BLEACHING, WASTE PAPER PROBLEMS—Expert consulting services, laboratory facilities, available. Operational problems of existing plants; design of new plants; engineering; construction. In strictest confidence. Address Box 53-19 care Paper Trade Journal TF

FOR SALE—2 Dilts Classifiners, one new, one used, complete with motors and drives. Address Box 53-256 care Paper Trade Journal. J-3

TELEPHONE
HUMBOLDT 2-2177

CABLE ADDRESS: JACKROSS

ROSS PAPER MACHINERY CO.

265 PASSAIC STREET
NEWARK 4, N. J.

CONVERTING
PAPER MAKING EQUIPMENT

NEW, USED, REBUILT
PAPER AND PULP MACHINERY

AGITATOR DRIVES
2—Cleveland enclosed—3 h.p. Ratio 24 to 1.
1—Foote Bros. enclosed—15 h.p. Ratio 33 to 1.
2—Portereducer—size 40. Ratio 50-1, with 15 h.p., 1740 r.p.m. motor and controls.
1—Portereducer—size 20. Ratio 35-1, with 5 h.p., 1740 r.p.m. motor and controls.

AIR HOIST
1—5-ton Ingersoll-Rand with Trolley.

BALERS
1—Economy Baler—20¼ x 24 x 49.
1—Economy Baler—60 x 32 x 96, with motor.

BEATER FILLING
1—New 54" Beater Filling with ⅝" bars, woods and bed plate.

BLOWERS
1—Sturtevant, Ball bearing, Size 7.
1—Sturtevant, Ball Bearing, Size 6.

CALENDER ROLLS
46—Chilled Iron Rolls—Assorted sizes.

CALENDER STACKS
1—Farrel Birmingham, 5 roll, 108" Calender with doctors, 2 rolls bored for steam.
1—Black Clawson 90" 7 roll with 2 spare rolls.
1—Pusey & Jones 88"—7 roll.

CYLINDER MOLDS
1—134" face x 36" diameter, with stainless steel shafts.
1—77" face x 48" dia.—Stainless Steel Shaft.

DAMPENER
1—Valley Micromist Unit for water finish on paper—120" deckle.

DRIVES
1—#3 Reeves anti-friction bearing.
1—Beloit enclosed drive right angle, ratio 3 to 1, with couplings and pulleys.
1—Falk enclosed drive, 100 H.P., ratio 5 to 1.
1—Link-Belt 40 h.p., ratio 2.2-1, 500 r.p.m.—227 r.p.m.
1—Cleveland enclosed drive right angle, 7 h.p.
1—#2 Reeves enclosed vertical drive.
3—#0 Reeves Drives—horizontal type.
1—#6 Reeves vertical, ball bearing.
1—Lewellyn, 20 h.p., totally enclosed. Horizontal class C-6-1.

DRYERS
17—160" face x 48" diameter.
2—160" face x 36" diameter.
1—130" face x 48" diameter.
17—127" face x 42" diameter.
1—126" face x 48" diameter.
2—124" face x 48" diameter.
1—116" face x 48" diameter.
1—116" face x 36" diameter, with gears and bearings.
1—110" face x 42" diameter, with bearings.
1—104" face x 36" diameter.
2—103" face x 48" diameter.
1—102" face x 48" diameter, with bearings.
1—86" face x 36" diameter, with frames, gears and bearings.
3—88" face x 36" diameter, with frames, gears and bearings.
39—46" face x 48" diameter, with gears, bearings and steam joints.
8—42" face x 36" diameter, with frames, gears and bearings.

DYNAPULPER
1—Rice Barton 11 ft. Dynapulper, with 54" diameter impellers. Requires 50 HP motor.

FILTERS
1—Oliver Vacuum Filter, 10' face x 5' 3" diameter. Steel vat.

FLAT SCREENS
3—8 plate Sandy Hill Roller Shoe.
2—Bagley & Sewall 8 plate.

FOURDRINIER WIRES
3—New Lindsay 76" x 47 ft. 10"—60 mesh.

HYDRAULIC PRESS
1—Thorpe 200 ton. Steam platens, 40" x 40" with pump.

JORDANS
1—#6 Miami, for motor drive.
1—Jones Majestic Stainless Steel Filling.
2—E. D. Jones Pony, 3/16" stainless steel fillings—banded plugs, spare new fillings.
1—Smith & Winchester Standard with granite fillings.

KAMYR WET END
1—Kamyr Wet End. Cylinder 59" diameter x 80" face. Steel vat—rubber couches—spare rolls and spare parts.

KNIFE GRINDER
1—100" Hanchett Knife Grinder with motor.
1—130" Hanchett, complete with Coolant Pump, 2 spare wheels and motor.

LABORATORY EQUIPMENT
1—Watson Stillman Hydraulic Press 12" x 12" platens, 5½" daylight opening.
1—New Sperry 12" Filter Press—10 plate.
1—Rice Barton 5 lb. stainless steel Dynapulper, with electric heater. For Sale or For Rent.

MOTORS
1—Allis Chalmers 30 h.p., 440 v., 660 r.p.m.
1—General Electric—25 h.p.—230 volts—3 ph—60 cycle—300/900 r.p.m.
25 other 440 v. motors from 2 h.p. to 15 h.p.

PULP EQUIPMENT
1—APMEW Ball Bearing Pulp Screens—30 ton capacity—outward flow.
1—D. J. Murray 10' x 25' Barking Drum.

PULPERS
2—#2 Lannoye.

PUMPS
44—Centrifugal Pumps, open & closed impellers. Direct connected or Belt Driven. Extended base for motor. Assorted capacities and heads. Most used less than one year.

REELS
1—Pusey & Jones 162" drum reel, complete with unwind stand and water cooled brake.
1—98" face x 24" diameter Drum Reel. Will rewind 40".
1—Holyoke 44". Will wind 38" diameter rolls.

REFINERS
2—#1 Claflin Refiners—ball bearing.
1—Dilts Hydrafiner with GE 150 h.p., 1800 r.p.m. motor and controls.

ROLL GRINDER
1—Lobdell 18' Roll Grinder handles 26" maximum diameter rolls.

ROLLS—PRESS, COUCH, etc.
32—Press rolls, brass and rubber covered.
14—Couch rolls, brass and rubber covered.
250—Brass and steel carrying rolls.

ROTARY DIGESTER
1—New Biggs 12½ ft. Rotary with drive—100# pressure.

ROTARY SCREENS
2—#2 Bird—Copper vat.

SAVEALLS
1—Bird #5 with enclosed drive and 3 h.p. motor.
1—Sandy Hill, stainless steel. Cylinder 100" face x 60" diameter. 18" diameter rubber couch.

SCREW PRESSES
1—Valley Voith Screw Press, size 2.

SHEETERS
1—Hamblet 124" Duplex Sheeter with Maxson layboy—8 roll backstand—motor and starter.
1—Moore & White Simplex 114" Sheeter with slitters—counter. Maxson layboy overlapping delivery. 8 roll backstand, motor and starter.

SHREDDERS
1—American 37" Hammermill, anti-friction bearing.
1—Jeffrey, 26½" knives, 7 knife rotor, 6 knife bed plate. Ball bearing.

SLICE
1—Beloit 132" adjustable slice, complete, including stands. Slice is of all bronze construction. Operated 1000 feet per minute.

SLITTERS AND WINDERS
1—Beloit 125" Paper Machine Slitter and Rewinder—42" rewind.
1—Hudson Sharp 60" Wax Paper Automatic Slitter and Rewinder.
1—Cameron 62"—Model 6.
1—Cameron 50"—Model 6, with motor and control.
1—Cameron 52"—Model 9-5-A.
1—Cameron 52"—Model 10-5. 30" Maximum rewind.
1—Cameron 72"—Model 10-5. 30" Maximum rewind. 1500 FPM Speed.

SMOOTHING PRESSES
2—New Farrel Birmingham 108" face x 24" diameter. Rubber covered, with ball bearings and enclosed drives.

STEAM TURBINES
1—De Laval 225 h.p. Initial pressure 140 p.s.i. Exhaust pressure 35 p.s.i. Complete with gear reducer.
1—De Laval Variable Speed—325 h.p. at 135 gauge and 30 p.s.i. exhaust. Complete with gear reducer.

STOCK PUMPS
1—Shartle 10 x 20 Single Plunger Pump.
2—Beloit 8 x 10 Triplex.
2—Shartle Agi-flo, 13" suction, 14" and 4" discharge. Anti-friction bearings.
1—Moore & White 10 x 16 Triplex.
1—Moore & White 8 x 8 Triplex.

SUCTION BOXES
6—Brass Suction Boxes, 156" x 4" opening.

SUCTION COUCH ROLLS
1—Millspaugh 36" diameter x 234" drilled face with enclosed drive, water cooled bearings, 12" suction boxes.
1—Millspaugh 156" drilled face x 22" diameter Suction Couch. Operated at 1000 ft. per minute.
1—Sandusky Suction Couch, 25" diameter x 122" drilled face.
1—Beloit 30" diameter x 103" drilled face, anti friction bearing, with enclosed drive.
1—Beloit 25" diameter x 103" drilled face, anti friction bearing.

SUCTION FELT ROLL
1—New Downingtown 186" drilled face x 16" diameter, with anti friction bearings and stands.

SUCTION PRESS ROLLS
1—Sandusky 84" drilled face x 22" diameter, rebuilt.

SUPERCALENDER STACK
1—Norwood 60" 10 roll, complete with motors.

THICKENER
1—IMPCO 5 ft. diameter Vacuum Thickener, 80" face with steel vat and spare couches. Used 3 years.

TOILET ROLL WINDERS
1—Hudson Sharp Model 20-B.
2—Hudson Sharp Model 50-B.

TOILET TISSUE PERFORATOR
1—Paper Converting Machine Co. Model 141 automatic 81" Perforator, ball bearing.

TRANSMISSION ROPE
700 ft.—New 1¼" Hemp Rope.
700 ft.—New 1¼" Cotton Rope.

TRIMMERS
1—Seybold 64"—20th Century.
1—Howard 44"—Downstroke type.
1—Seybold 48" Dayton with motor.
1—Seybold 45"—20th Century.

VACUUM PUMPS
2—Nash ½ H-5 Vacuum Pumps.
1—Nash K-4 with new rotor.
1—Nash K-5.
2—#8 Nash Hytor.
1—Connersville 2.1 cu.ft. per rev. With base.
2—Connersville 1.65 cu.ft. per rev. With base.
1—Connersville .75 cu.ft. per rev. With base.
1—Connersville Type RSB. With base.
2—Oliver Vacuum Pumps 14" x 8". 10" to 15" vacuum at 150 to 300 rpm.

VOITH INLETS
2—Valley Iron Voith Inlets, adjustable 83" to 86"—brass lip, stainless steel apron.
1—Valley Iron Voith Inlet 156", with motor drive, brass construction. Operated at 1000 ft. per minute.

VORTRAPS
12—4" Stainless Steel with rubber lined heads, 3" Hills McCanna Valves and stainless steel headers. Completely rebuilt.
4—New all bronze 4" Vortraps.
2—3" stainless steel, with valves.
1—1½" stainless steel, with valves.
2—Stainless Steel Vortrap Capacity Tanks.

WET MACHINES
1—Rogers 72" double press Wet Machine, 48" diameter cylinder mold—with rubber couch.
1—Rogers 96" double press Wet Machine, 48" diameter cylinder—rubber couch, spare new top and bottom felts.

WRAPPING MACHINES
1—Cannard Semi Automatic Toilet Roll Wrapper.
1—Cannard Automatic Junior Toilet Roll Wrapper.
1—Paper Converting Machine Towel Wrapper—Model 1468.
1—Package Machinery Model 18 Cellophane Wrapper.

FOR SALE

CAMERON SLITTERS

1—58½" Type 26-3A.
1—42" Type 26-2A.
1—42" Type 6.
1—52" Type 10—5A.
1—62" Type 8-5.
4—62" Type 40-1-AF.
1—42" and 62" Type 10-5.
3—72" Type 10-11 Shear-cut.

OTHER SLITTERS

1—90" Johnstone Mill Type Score Cut. 44" Maximum Rewind.
1—87" Langston Type BA Shear-cut. 60" Max. Rewind.
1—60" Meisel Series OP-1, Shear-cut.
1—48" Kidder Model CH Shear-cut.
1—60" Langston Type AA, Shear-cut and 1—50" Duplex, Shear-cut.
1—40" Beck Razor Blade Type.
1—56" Chambon, Shear-cut.
1—30" Model B Fales Slitter.
1—40" Kidder Model SL Shear-cut.
1—63" Goebel Rapid U Type Shearcut.
1—32" Goebel Center Wind Shearcut.

POWER PAPER CUTTERS

14—Seybold, 44" and 56", 10Z, 84" 12ZH, 34"-3Y, 39", 44" and 84" 20th Century, 56", 57", 64" and 74" Daytons, 44", 48" and 55" Holyokes.
4—Oswegos, 38", 44", 50" and 63".
3—Smith & Winchester Undercut, 63", 69" and 84".

PRINTING PRESSES

1—36" 5-color Champlain Rotogravure Press. Unit Type.
1—24" Kidder 4 Color Celloprinter.
1—42" Kidder 6 color ANILINER, VS Drive. Roll to roll.
1—15" x 17" Model B Speedflex Press.
1—14" and one 15" 5 color Champlain, unit type, Rotogravure Presses.
1—20", 1—30" and 1—32" Flexographic Tailprinters.
1—39" Heinrich Flexographic Two Side Coating Machine with Dryer.

MISCELLANEOUS MACHINES

2—Lawtomatic Model A Toilet Roll Wrappers.
1—60" Chambers Varnishing Machine with Golden Gate Dryer and Dexter Pile Feeder.
1—Seybold 24" x 38" Die Press.
3—Sheridans, 18" x 33", 19" x 45" and 22" x 44" Die Presses.
3—Waldron Embossers, 1—29", 1—34" and 1—42".
2—81" Dietz Toilet Paper Converters.
2—62" Paper Converting Machinery Co's. Multi-Fold Towel Machines.
1—58" Paper Converting Machinery Co's. Single Fold Towel Machine.
1—48" Mayer Equalizer Waxing Machine.
1—Hudson-Sharp 3 Web ¼ Fold Napkin Machine with Embosser.
1—Bagprint F&S Bag Machine, 1—8-10.
1—Lockport Sack Machine. 1/16, 1/8, 1/6 and 1/4 bbl.
1—35" Waldron Gummed Paper Breaker.
3—55" Beck Rotary Sheeters, one with Electric Eye.
1—64" and 1—82" Hamblet Single Rotary Sheet Cutter with Hamblet Single Pile Layboy and 8-Roll Double-Deck Back Stands. A.C. Motor.
1—30" Waldron Gumming Machine. Complete.
3—Schultz Automatic Rewinders. 1—18", 1—24" and 1—48".

PAPER AND PULP MILL MACHINERY

1—Noble & Wood 12½ lb. Experimental Beater.
1—94" Sandy Hill Fourdrinier Wet-end.
1—88" Beloit Removable Fourdrinier Wet end.
3—Noble & Wood Mastodon Jordans.
1—62" Norwood 16-roll Stack of Glassine Super Calenders, with Dampener.
1—Weiner Refiner.
1—#3A Bird Rotary Screen.
10—12-14 Plate Flat Screens.
1—Beloit Iron Works Suction Couch Roll 25" dia. 104" face.
1—#2 Claflin Refiner. For direct Motor Drive.
1—72" Rogers Dual Press Wet Machine. With Clothing and AC Motor.
1—32" Sutherland Refiner.
1—8'x6' Impco Washer-Thickener.
2—Three Pocket and 2—Four Pocket Pulpwood Grinders.

GIBBS-BROWER CO., INC.

Please address reply to Room 902
21 E. 40th Street, New York 16, N. Y.
Telephone Murray Hill 5-7824

1-3

AUCTION

Pursuant to an order by the Bankruptcy Court
In the Matter
of
BERWIN PAPER MANUFACTURING CORP. Bankrupt.
Paper manufacturing business
will be offered for sale at

PUBLIC AUCTION

on
THURSDAY, JULY 16th, 1953, 10:30 A.M. E.D.S.D.T.
on the premises of the bankrupt
at

KNOX STREET DANSVILLE, N. Y.

REAL ESTATE, MACHINERY, EQUIPMENT, SMALL TOOLS, RAW MATERIAL, OFFICE EQUIPMENT, etc., WILL BE OFFERED FIRST IN BULK, then UNITS, and PARCELS or LOTS

Complete plant for paper manufacturing equipped with four beaters, one 2400 lb; one 1800 lb; two 1400 lb; two Jordans, two screens; two bleachers; five filters; 1 pulper; 1 refiner, two cylinder paper machines, widest trimmed sheets 65½ and 74 inches, eight dryers for each machine, 75-85 inches diam. Purchased electricity, 60 cycle, 3 phase, 800 HP. Installed electricity, motors of 440 V. Fuel Coal; 160 lb. steam pressure, water treatment and effluent treatment plants. Candy twisting and waxing tissue; High grade wrapping tissue and newsprint; 24,000 lbs. 24 hours.

30 Motors, 3 to 100 HP.	Paper Testing and Weighing Equipment.
30 Pumps.	2 Erie Ball Bearing Steam Engines.
Machine Shop.	Bulkley-Dunton Colloidal Save-All
Small Tools.	Transformers, Generators, Air Compressors.

Wm. Bros. 300 HP, 25,000 lb. per hour, Water, Tube Boiler, built in 1947.

Machine Parts and Supplies. Engine Parts and Supplies. Power Plant Parts and Supplies. Maintenance Sundry Supplies.

$70,000.00 Raw Materials, at cost.

Sulphite, Ground Wood, Alum, Bleach, Waste, Chemicals, Colors, etc. $10,000.00, All New Pickup, Wet and Dryer Felt, at cost.

REAL ESTATE. LAND 475′ x 350′.

Buildings consisting of Boiler House, Purifying Room, Electric Bus Room, Lime and Bleach Room, Beater Room, Machine Room, Machine Shop, Shipping Room, Oil House, Brick and Concrete Construction, Cement Floors, Approximately 24,000 sq. ft.

Warehouse and Storage Shed, Wood Constructed, Approximately 8,500 sq. ft. Garage and Office Building, Brick Constructed, Approximately 950 sq. ft. With Power Master Oil Burner Unit Boiler, year built 1949. Blower Heater Units, Radiators, Fluorescent and Regular Lighting Fixtures, Grinnell, Wet and Dry Sprinkler System with Fire Alarm System.

Sale subject to confirmation by the Hon. C. Norbert Baglin, Referee in Bankruptcy.

Terms of Sale: Certified check or cash—25% deposit required.

E. Charles Larry, Trustee	Burns & Suter
39 Exchange St.	Relin & Relin, Attorneys for Trustee
Rochester, New York.	Rochester, New York.

INSPECTION: WEDNESDAY, JULY 15th, 1953, 10:00 A.M. to 5:00 P.M. or by APPOINTMENT PREVIOUS TO AUCTION DATE BY CALLING THE AUCTIONEERS.
FOR ILLUSTRATED, DESCRIPTIVE CIRCULAR, APPOINTMENT OR INFORMATION, WRITE, WIRE OR PHONE

I. SHOOLMAN & ASSOCIATES
AUCTIONEERS APPRAISERS LIQUIDATORS
Phone: Hamilton 8120 526 Granite Bldg. Rochester, N. Y.
Syracuse Office—317 State Tower Bldg. Phone: 3-1231, Syracuse, N.Y.

1-3

FOR SALE

Hardwood pulp mill including 72" trim pulp machine consisting of two cylindermoulds and couch rolls, suction couch roll, first press with 24" dia. rolls, second press with 18" rolls, eighteen dryers 28" dia. and twenty one dryers 36" dia. Also two bowl reel, Moore & White four drum winder. Foundation plate (63 ft.). Also drive, lineshaft and pulleys.

Also included are three rotary digesters with reducers and drives, Green Bay Saveall, Shartle refiner with motor, coupling and base, Dilts beater 56x48" with cast iron tub and drive, Impco re-pulper, Wallace Tiernan chlorinator, two 8 x 6 Oliver filters, two 8 x 4 Oliver filters, stainless steel heads, three 5 HP Reeves motor drives, four Bird consistency regulators (new), Buffalo limit load exhauster size six, class 1 with motor and drive, Koregl slitter grinder, glass lined tanks 6' x 6', three heat exchangers, 14" O.D. x 20 ft. Impco chemical mixer, two ft. agitator drives 6 - 90 - 150, 15 HP, 220-440 volt motors, two ft. agitators 10 H.G.V. with 15 HP 220-440 volt motors, Sturtevant blower number 281181 with motor, two Frederick pumps 200 GPM, one 100 ft. head, with motors, one Frederick pump 150 GPM, 25 ft. head with motor, one size 2½ Gardner Denver pump, one Suderbuilt vacuum pump with motor, two vacuum receivers.

All the above equipment is still set up in its original location. Equipment was used for about six months.

Items to be sold separately or as a unit.

Frank H. Davis Co., 175 Richdale Ave., Cambridge, Mass.

J-3

FOR SALE

172" trim left hand Pusey & Jones Fourdrinier paper machine. Machine originally installed 1928. Fourdrinier rebuilt by Pusey & Jones in 1950. Wire 190" x 70 feet. 30" suction couch. Two presses, with new 34" Downingtown suction roll-on first press. Smoothing press. Twenty dryers 60" x 188". 7 roll calender. Pope reel. No. 19 Cameron. All electric drive. Machine now in operation approximately 1000 FPM, producing 63 tons 27 pound Bond. Machine can be inspected while in operation.

Frank H. Davis Company, 175 Richdale Avenue, Cambridge, Mass.

TF

FOR SALE

FOR SALE

Reels
190" Pusey & Jones Pope reel.
162" Pusey & Jones uniform speed reel.
96" Rice Barton two bowl.

Winders
186" Cameron No. 19.
152" Cameron No. 18.
82" Cameron 10-10.
72" Langston Style A.
42" Cameron Type 6.

Cutters (Duplex)
150" Hamblet.
124" Hamblet extra heavy with Cameron rotary board slitter.
100" Dillon.
90" Hamblet.

Cutters (Single)
108" Moore & White with layboy.
86" Dillon with Brannon folder.
80" Hamblet with Moore & White layboy and roll-stand.
72" Clark.

Jordans
2—Noble & Wood Mammoth.
2—Noble & Wood Bulldog.
1—No. 1 Jones.
1—Jones Imperial.

Refiners
2—36" Bauer, double disc.
1—32" Sutherland.
2—No. 1 Claflin.
2—Shartle No. 4.

Pumps (Vacuum)
2—Nash hytor No. 8.
1—Nash L-6, all bronze.
2—Nash hytor No. 3.
1—Nash hytor No. 2.

Dryers
40—48 x 160" Pusey & Jones.
8—48 x 100" Pusey & Jones.

FRANK H. DAVIS CO.
175 Richdale Ave., Cambridge, Mass.
TF

FOR SALE

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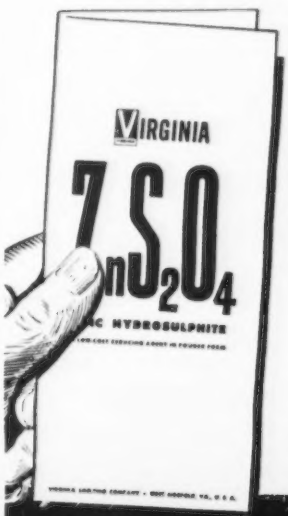

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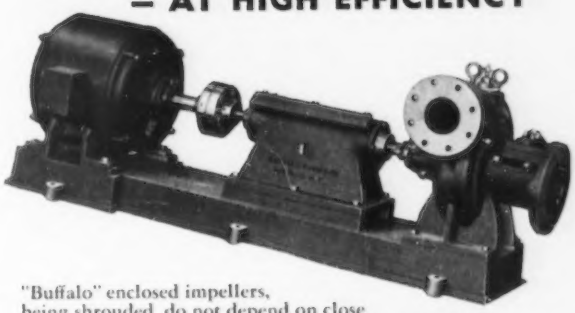

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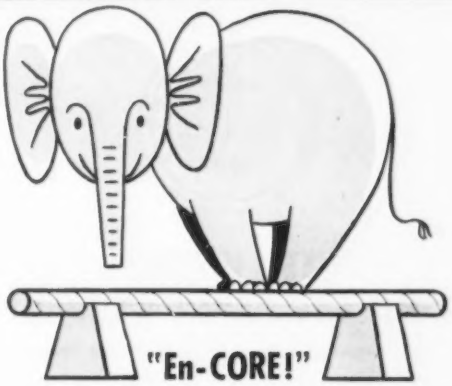

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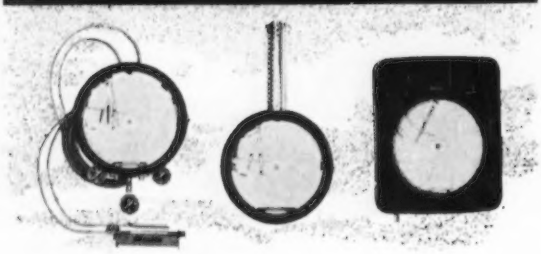

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KRAFT CONVERTING AND KRAFT ENVELOPE

MILLS

Mechanicville, New York
Luke, Maryland
Covington, Virginia
Tyrone, Pennsylvania
Williamsburg, Pennsylvania
Charleston, South Carolina

WEST VIRGINIA PULP and PAPER COMPANY

230 Park Avenue, New York 17, N. Y.

35 East Wacker Drive, Chicago 1, Ill. 503 Market St., San Francisco 5, Calif.

DRILLED SUCTION COUCH ROLLS
Downingtown Mfg. Co.
Manchester Machine Co.

DRILLED SUCTION DRUM ROLLS
Downingtown Mfg. Co.
Manchester Machine Co.

DRIVES
Appleton Machine Co.
The Bagley & Sewall Company
Beloit Iron Works
Bird Machine Co.
Black Clawson Company
Dodge Mfg. Corp.
Downingtown Mfg. Co.
Farrel-Birmingham Co.
Jeffrey Mfg. Co.
General Electric Company
Gibbs-Brower Company, Inc.
Link Belt Co.
Manchester Machine Co.
Moore & White Co.
Murray, D. J., Mfg. Co.
Pusey & Jones Corp.
Rice Barton Corporation
J. J. Ross Company
Ross Paper Machy. Corp.
The Sandy Hill Iron & Brass Works
Shartle Bros. Mch. Co.
Valley Iron Works Co.

DRUM WINDERS
Clark-Aiken Co.
Downingtown Mfg. Co.
Manchester Machine Co.
Rice Barton Corporation

DRYER ROLL PYROMETER
Midwest Fulton Mch. Co.
Testing Machines, Inc.
Thwing-Albert Instrument Co.

DUSTERS
Appleton Machine Co.
Frank W. Egan & Co.
M. W. Jenkins Sons, Inc.
E. D. Jones & Son Co.
Moore & White Co.
D. J. Murray Mfg. Co.
Waldron, John, Corp.

DUSTING BRUSHES
M. W. Jenkins Sons, Inc.

DYESTUFFS
Ciba Company
E. I. du Pont de Nemours & Co., Inc.
Geigy Co., The

ELECTRIC HYDROMETER
Testing Machines, Inc.

ELECTRIC HYGROMETER
Thwing-Albert Instrument Co.

ELECTRICAL PRECIPITATORS
Research Corporation

EMBOSSING MACHINES
Dilts Machine Works
Clark-Aiken Co.
Egan, Frank W., & Co.
Paper Converting Machine Co.
John Waldron Corp.

EMBOSSING ROLLS
The Appleton Machine Co.
Gibbs-Brower Company, Inc.
Holyoke Machine Co.
B. F. Perkins & Son, Inc.
John Waldron Corp.

EMPLOYMENT SERVICE
Bixby, R. W., Inc.
Raymond, Chas. P., Service, Inc.

EMULSIFIERS
General Dyestuff Corp.
Nopco Chemical Co.
Wyandotte Chemicals Corp.

ENZYMES
Vanderbilt Co., R. T.

EVAPORATORS
Goslin-Birmingham Mfg. Co., Inc.
Jackson & Church Co.
Murray, D. J., Mfg. Co.
Swenson Evaporator Co., Div. of Whiting Corp.
Westinghouse Electric Corp.

EXPANDERS
Mount Hope Machinery Co.

EXTRACTOR PLATES
Mundt, Chas., & Sons

FANS
Buffalo Pumps, Inc.,
General Electric Co.
B. F. Perkins & Son, Inc.
Roots-Connersville Div.
Ross Engineering Co., J. O.
Westinghouse Electric Corp.

FEEDERS
Jeffrey Mfg. Co.
Merrick Scale Mfg. Co.

FELTS
Appleton Woolen Mills
Asten-Hill Mfg. Co.
Draper Bros. Corp.
Huyck & Son, F. C.
Knox Woolen Company
Lockport Felt Co.
Morey Paper Mill Supply Co.
Shuler & Benninghofen
Waterbury Felt Co.
Williams-Gray Co.

FELT CLEANERS
Calgon, Inc.
General Dyestuff Corp.
Nopco Chemical Co.

FELT CONDITIONERS
Bird Machine Co.
Downingtown Mfg. Co.
Mount Hope Machinery Co.
Rice Barton Corporation
The Sandy Hill Iron & Brass Works

FELT EXPANDERS
Mount Hope Machinery Co.

FELT GUIDES
Black Clawson Company
Downingtown Mfg. Co.
Frank W. Egan & Co.
Gilbert & Nash Co.
Moore & White Co.
The Noble & Wood Machine Co.
Mount Hope Machinery Co.
Rice Barton Corporation
The Sandy Hill Iron & Brass Works
Shartle Brothers Machine Co.
Waldron Corp., John

FELT PRESERVERS
Mount Hope Machinery Co.

FIBRE BOARD MACHINES
Sandy Hill Iron & Brass Works

FILLERS
American Cyanamid Company, Industrial Chemicals Division
J. M. Huber Corp.
A. M. Meincke & Son, Inc.
Vanderbilt Co., R. T.
Wyandotte Chemicals Corp., Michigan Alkali Div.

FILLINGS
John W. Bolton & Sons, Inc.

FILTER MEDIA
Anthracite Equipt. Corp.
Palmer Filter Equipt. Co.

FILTERS
Bird Machine Company
Bulkley, Dunton Processes, Inc.
Holyoke Machine Co.
Hungerford & Terry, Inc.
Improved Machinery Inc.
Johnson Corp.
Moore & White Co.
J. O. Ross Engrg. Corp.
The Sandy Hill Iron & Brass Works
Walworth Company

FILTERS, LIME MUD
Bird Machine Company

FILTER SCREENS
Mundt, Chas. & Sons

FINE SCREENS
Bird Machine Company
Mundt, Chas. & Sons
Sandy Hill Iron & Brass Works

FITTINGS
The Bagley & Sewall Company
Crane Company
Grinnell Company
Pittsburgh Piping & Equipt. Co.
Shartle Bros. Mch. Co.
Walworth Company

FLEXIBLE COUPLINGS
Dodge Manufacturing Corp.
Egan, Frank W., & Co.
Elliott Company, Inc.
Jeffrey Mfg. Co.
John Waldron Corp.
Westinghouse Electric Corp.

FLOORING, GRATING AND TREADS
The Goodyear Tire & Rubber Company
Norton Co.

FLOTATION EQUIPMENT
Denver Equipment Co.

FLOW BOXES
Biggs Boiler Works Co.
Lukens Steel Co.
Rice Barton Corporation
The Sandy Hill Iron & Brass Works

FOLDERS
Emerson Mfg. Co.

FORK LIFT TRUCKS
Elwell Parker Elec. Co.

FORMATION TESTERS
Testing Machines, Inc.
Thwing-Albert Instrument Co.
Williams Apparatus Co., Inc.

FOURDRINIERS
Beloit Iron Works
Black Clawson Company
Downingtown Mfg. Co.
Manchester Machine Co.
The Moore & White Co.
Rice Barton Corporation
The Sandy Hill Iron & Brass Works
Shartle Brothers Machine Co.

FREENESS TESTERS
Testing Machines, Inc.
Williams Aparatus Co.

GASKETS
B. F. Goodrich Co.
The Goodyear Tire & Rubber Company

GEAR MOTORS
Elliott Company, Inc.
Westinghouse Elec. Corp.

GEAR REDUCERS
Dodge Mfg. Corp.
Downingtown Mfg. Co.

GEAR REDUCER DRIVES
Link Belt Co.

GEARS
The Bagley & Sewall Company
Black Clawson Company
De Laval Steam Turbine Co.
Downingtown Mfg. Co.
Frank W. Egan & Co.
Farrel-Birmingham Co.
E. D. Jones & Sons Co.
Moore & White Co.
D. J. Murray Mfg. Co.
Rice Barton Corporation
The Sandy Hill Iron & Brass Works
Shartle Brothers Machine Co.
Smith & Winchester Mfg. Co.
Valley Iron Works Co.
Westinghouse Electric Corp.

GRAPPLES
Blaw-Knox Company
Owen Bucket Co.
Wellman Engrg. Co.

GRINDERS
Carthage Machine Co.
Farrel-Birmingham Co.
Gibbs-Brower Company, Inc.
Hanchett Mfg. Co.
Lobdell United Co.
Norton Company
Samuel C. Rogers and Company
The Sandy Hill Iron & Brass Works

GRINDING WHEELS
Norton Company
Simonds Abrasive Co.

GUIDES
The Bagley & Sewall Company
Beloit Iron Works
Black-Clawson Co.
Downingtown Mfg. Co.
Egan, Frank W., & Co.
Gilbert & Nash Co.
The Moore & White Co.
Mount Hope Machinery Co.
Rice Barton Corporation
Sandy Hill Iron & Brass Works
Waldron, John, Corp.

GUMMING MACHINES
Dilts Machine Works
Egan, Frank W., & Co.
Paper Converting Machine Co.
The Sandy Hill Iron & Brass Works
Waldron, John. Corp.

GUMS
Hercules Powder Co., Inc.
National Starch Products, Inc.

HEAT EXCHANGERS AND RECOVERY SYSTEMS
Westinghouse Electric Corp.

HEATING, VENTILATING & AIR CONDITIONING
The Appleton Machine Co.
E. D. Jones & Sons Co.
General Electric Co.
Jackson & Church Co.
Jamar Olmen Co.
D. J. Murray Mfg. Co.
Red-Ray Mfg. Co., Inc.
Ross Engineering Corp., J. O.
Valley Iron Works Co.
Westinghouse Electric Corp.

HONING KIT
John W. Bolton & Sons, Inc.

HOSE (Air, Water, Suction, etc.)
B. F. Goodrich Co.
The Goodyear Tire & Rubber Company

HUMECTANTS
Aktivin Division, Heyden Chemical Corp.
Nopco Chemical Co.
Wyandotte Chemicals Corp., Michigan Alkali Div.

HYDRAULIC TURBINES & ACCESSORIES
James Leffel Co.

IMPREGNANTS
American Cyanamid Company, Industrial Chemicals Division
Sun Oil Company
B. F. Goodrich Chemical Co.

INDENTING MACHINES
Dilts Machine Works

INDUSTRIAL CONTROL
Westinghouse Elec. Corp.

INDUSTRIAL TIRES
B. F. Goodrich Co.

INDUSTRIAL TRACTORS
Towmotor Corp.

INKOMETER
Thwing-Albert Instrument Co.

INSTRUMENTS, TESTING AND MEASURING
Black-Clawson Co.
General Electric Co.
W. & L. E. Gurley
B. F. Perkins & Son
Taylor Instrument Cos.
Testing Machines, Inc.
Testworth Laboratories
Thwing-Albert Instrument Co.
Tracerlab, Inc.
A. van der Korput
Williams Apparatus Co.
Westinghouse Electric Corp.

INSULATION
Insul-Mastic Corp. of America

JACKETS
Emerson Mfg. Co.

JOINTS
The Bagley & Sewall Company
Beloit Iron Works
Cram Associates
Downingtown Mfg. Co.
Johnson Corp.
Rice Barton Corporation
Sandy Hill Iron & Brass Works
Shartle Brothers Machine Co.

JORDANS
Emerson Mfg. Co.

JORDAN FILLINGS
Appleton Machine Co.
Bahr Bros. Manufacturing Co.
John W. Bolton & Sons, Inc.
E. D. Jones & Sons Co.
Shartle Brothers Machine Co.
Smith & Winchester Mfg. Co.
Valley Iron Works Co.

KILNS
Jackson & Church Co.
F. L. Smidth & Co.

KNIVES
Black Clawson Company
John W. Bolton & Sons, Inc.
Dilts Machine Works, Inc.
Hamblet Machine Co.
E. D. Jones & Sons Co.
The Moore & White Co.
Simonds Saw & Steel Co.
Taylor Stiles & Co.
Valley Iron Works Co.

KNOTTERS
Black-Clawson Co.
Improved Machinery, Inc.
Sandy Hill Iron & Brass Works

LABORATORY CORRUGATOR
Testing Machines, Inc.
Thwing-Albert Instrument Co.

LABORATORY EQUIPMENT
Appleton Machine Co.
Bauer Brothers Co.
Biggs Boiler Works Co.
Bird Machine Company
Dilts Machine Works
Downingtown Mfg. Co.
W. & L. E. Gurley
Egan, Frank W., & Co.
Hermann Mfg. Co.
Jackson & Church Co.
E. D. Jones & Sons Co.
Taylor Instrument Companies
Testing Machines, Inc.
Testworth Laboratories
Thwing-Albert Instrument Co.
Valley Iron Works Co.
Waldron, John, Corp.
Williams Apparatus Co., Inc.

LAMINATING MACHINES
The Bagley & Sewall Company
Dilts Machine Works
Egan, Frank W., & Co.
Paper Converting Machine Co.
Rice Barton Corporation
Waldron, John, Corp.

LAY BOYS
Dilts Machine Works
Gibbs-Brower Company, Inc.
Hamblet Machine Co.
Moore & White Co.

LINTER PULP
Hercules Powder Co., Inc.

LUBRICANTS
Cities Service Oil Co.
Gulf Oil Corp.
Sinclair Refining Co.
Socony-Vacuum Oil Co.
The Texas Company

MAGAZINE REELS
Dilts Machine Works

MAGNETIC SEPARATORS
Bauer Bros. Co.
Eriez Manufacturing Co.

MATERIALS HANDLING
Dilts Machine Works
Downingtown Mfg. Co.
Ederer Engrg. Co.
Jeffrey Mfg. Co.
Link Belt Co.
Shartle Bros. Mch. Co.
Towmotor Corp.
The Wellman Engrg. Co.

MICROMETERS & CALIPERS
Farrel-Birmingham Co.
Lobdell Co.
Testing Machines, Inc.

MIXERS
Jackson & Church Co.
Mixing Equipment Co.

MICRO-CRYSTALLINE WAXES
Sun Oil Company

MOISTURE CONTENT CONTROL
Testing Machines, Inc.
Williams Apparatus Co., Inc.

MOISTURE METERS
Testing Machines, Inc

MOTORS
Elliott Company

MOTORS AND GENERATORS
Elliott Company, Inc.
General Electric Company
Reliance Electric & Engrg. Co
Westinghouse Electric Corp.

NICKEL AND NICKEL ALLOYS
The International Nickel Co.

NOZZLES
Spray Engrg. Co.

PACKING BOXES
Johnson Corporation
The Moore & White Co.
Shartle Brothers Machine Co.

PADDLE SCREENS
Mundt, Chas., & Sons

PAPER MACHINE DRIVES
The Bagley & Sewall Company
Beloit Iron Works
Black-Clawson Co.
Downingtown Mfg. Co.
Manchester Machine Co.
Rice Barton Corporation
Sandy Hill Iron & Brass Works
Westinghouse Electric Corp.

PAPER MACHINES
The Bagley & Sewall Company
Beloit Iron Works
Black-Clawson Company
Downingtown Mfg. Co.
Gibbs-Brower Company, Inc.
Thomas W. Hall Co.
Lukenweld
Manchester Machine Co.
Moore & White Co.
Pusey & Jones Corp.
Rice Barton Corporation
J. J. Ross Company
Ross Paper Machinery Corp.
The Sandy Hill Iron & Brass Works
Shartle Brothers Machine Co.
Smith & Winchester Mfg. Co.

PAPER MACHINE SLICES
Black-Clawson Company
Downingtown Mfg. Co.
E. D. Jones & Sons Co.
The Moore & White Co.
Rice Barton Corporation
The Sandy Hill Iron & Brass Works
Valley Iron Works Co.

PAPER TUBE MACHINERY
Dietz Machine Works
Gibbs-Brower Company, Inc.
Thomas W. Hall Co.
Hudson Sharp Machine Co.
Langston Co., Samuel M.
Paper Converting Machine Co.

PARAFFINE WAXES
Sun Oil Company

PARAFFIN WAX EMULSIONS
American Cyanamid Co., Ind. Chem. Div.
Hercules Powder Co., Inc.
Nopco Chemical Co.

PASTING MACHINES
Beloit Iron Works
Black Clawson Company
Dilts Machine Works
Frank W. Egan & Co.
Gibbs-Brower Company, Inc.
Murray, D. J., Mfg. Co.
Moore & White Co.
The Sandy Hill Iron & Brass Works
Shartle Brothers Machine Co.
Waldron Corp., John

PERFORATED SCREENS
Chas. Mundt & Sons

PEBBLE MILLS
F. L. Smidth & Co.

pH METERS
Testing Machines, Inc.
Thwing-Albert Instrument Co.

PIPE
Armco Drainage & Metal Products, Inc.
Babcock & Wilcox Co.
Crane Company
Grinnell Company
National Tube Co.
Naylor Pipe Co.
Walworth Company

PIPE FABRICATORS
Pittsburgh Piping & Equipt. Co.

PIPE FITTINGS
Armco Drainage & Metal Products, Inc.
Crane Company
Grinnell Company
Pittsburgh Piping & Equipt. Co.
Walworth Co.

PIPING, HIGH PRESSURE
Pittsburgh Piping & Equipt. Co.

PITCH CONTROL
American Cyanamid Company, Industrial Chemicals Division
General Dyestuff Corp.
Monsanto Chemical Company
National Aluminate Corp.
Nopco Chemical Co.

PLASTICIZERS
American Cyanamid Company, Industrial Chemicals Company
Aktivin Division, Heyden Chemical Corp.
B. F. Goodrich Chemical Co.
Jackson & Church Co.
Naugatuck Chemical Division of U. S. Rubber Co.
Nopco Chemical Co.

PLATERS
Gibbs-Brower Company, Inc.
Perkins & Son, Inc., B. F.

PLATES
Armco Steel Corp.
Babcock & Wilcox Co.
Lukenweld Division
Lukens Steel Company
J. O. Ross Engrg. Corp.
Timken Roller Bearing Co.

PLUGS
The Appleton Machine Co.
Black-Clawson Company
Emerson Mfg. Co.
E. D. Jones & Sons Co.
Shartle Brothers Machine Co.

POPE TYPE REELS
Black-Clawson Company
Downingtown Mfg. Co.
Egan, Frank W., & Co.
Manchester Machine Co.
Rice Barton Corporation
Sandy Hill Iron & Brass Works

PRESERVATIVES
Buckman Laboratories, Inc.
E. I. du Pont de Nemours & Co.
General Dyestuff Corp.

PRESS ROLLS
Beloit Iron Works
Black-Clawson Co.
Downingtown Mfg. Co.
Goodrich, B. F., Company, Inc.
Manchester Machine Co.
Rice Barton Corporation
Sandy Hill Iron & Brass Works

PRESSURE FILTERS
Holyoke Machine Co.
Jackson & Church Co.
Sandy Hill Iron & Brass Works

PRESSURE VESSELS
Chicago Bridge & Iron Co.
A. O. Smith Corp.

PRESSES
Beloit Iron Works
Black-Clawson Company
Downingtown Mfg. Co.
Dietz Machine Works
Farrel-Birmingham Co.
Gibbs-Brower Company, Inc.
Hudson-Sharp Machine Co.

Jackson & Church Co.
Manchester Machine Co.
The Moore & White Co.
Paper Converting Machine Co.
Rice Barton Corporation
The Sandy Hill Iron & Brass Works
Shartle Brothers Machine Co.
Testing Machines, Inc.
Valley Iron Works Co.
Waldron Corp., John
H. G. Weber & Co., Inc.
Williams Apparatus Co.

PROTECTIVE COATINGS
Insul-Mastic Corp. of America

PULLEYS
Bird Machine Company
Black-Clawson Co
Dodge Mfg. Corp.
Rice Barton Corporation
Sandy Hill Iron & Brass Works

PULP CLASSIFIER
The Bauer Bros. Co.
Testing Machines, Inc.
Thwing-Albert Instrument Co.

PULP CLEANERS
Bauer Bros. Co.
Bird Machine Co.
Nichols Engrg. & Research Corp.
Sandy Hill Iron & Brass Works

PULP REFINERS
Emerson Mfg. Co.

PULP SCREENS
Bird Machine Co.
Mundt, Chas. & Sons
Sandy Hill Iron & Brass Works

PULP STOCK VALVES
Crane Company
Grinnell Company
Record Fdy. & Mach. Co.
Rice Barton Research Corp.
Sandy Hill Iron & Brass Works
Shartle Brothers Machine Co.

PULP WASHERS
Mundt, Chas., & Sons
Sandy Hill Iron & Brass Works

PULPERS
Apmew, Inc.
Bauer Brothers Co.
Cowles Company
Curlator Corp.
Dilts Machine Works
Downingtown Mfg. Co.
E. D. Jones & Sons Co.
Midwest Fulton Mch. Co.
Morden Machines Co.
Rice Barton Research Corp.
Shartle Brothers Machine Co.

PULPS
Brown Company
Gottesman & Co., Inc.
Lyddon & Co. (America), Inc.
Parsons & Whittemore, Inc.
Perkins-Goodwin Co.
Price & Pierce, Ltd.
Pulp and Paper Trading Co.
Pulp Sales Corp.
Restigouche Co., Ltd.

PULPSTONES
Norton Company

PULP TESTERS
Testing Machines, Inc.
Williams Apparatus Co., Inc.

PULP TREATING
Curlator Corp.

PULVERIZING MILLS
Jeffrey Mfg. Co.
F. L. Smidth & Co.

PUMPS
Apmew, Inc.
The Bagley & Sewall Company
Beloit Iron Works
Black Clawson Company
Buffalo Pumps, Inc.
Byron Jackson Co.
DeLaval Steam Turbine Co.
Downingtown Mfg. Co.
Gibbs-Brower Company, Inc.
Johnson Corp.
Moore & White Co.
Nash Engineering Co.
Roots Connersville Blower Corp.
J. J. Ross Company
Ross Paper Machy. Corp.
The Sandy Hill Iron & Brass Works
Shartle Brothers Machine Co.
Smith & Winchester Mfg. Co.

RADIAL SCREENS
Chas. Mundt & Sons

RADIANT BURNERS
Red-Ray Mfg. Co., Inc.

RAG COOKING PROCESSES
General Dyestuff Corp.

RAG CUTTERS
Gibbs-Brower Company, Inc.
B. F. Perkins & Son, Inc.
Taylor-Stiles & Co.

RECOVERY SYSTEMS
Babcock & Wilcox Co.
Chicago Bridge & Iron Co.
Moore & White Co.
D. J. Murray Mfg. Co.
Peabody Engrg. Corp.
Pusey & Jones Corp.
Ross Engineering Corp., J. O.
Valley Iron Works Co.
Vulcan Copper & Supply Co.

REELS
The Appleton Machine Co.
The Bagley & Sewall Company
Beloit Iron Works
Black Clawson Company
Dilts Machine Works (Kohler Systems)
Egan, Frank W., & Co.
Downingtown Mfg. Co.
Hudson-Sharp Mch. Co.
Manchester Machine Co.
Moore & White Co.
Rice Barton Corporation
The Sandy Hill Iron & Brass Works
Shartle Brothers Machine Co.
The Smith & Winchester Mfg. Co.
Waldron, John, Corp.

REFINERS
Appleton Machine Co.
Bahr Brothers Mfg. Co.
Bauer Brothers Co.
Curlator Corp.
Dilts Machine Works
Downingtown Mfg. Co.
Gibbs-Brower Company, Inc.
Hermann Mfg. Co.
Jackson & Church Co.
E. D. Jones & Sons Co.
Morden Machines Co.
Murray, D. J., Mfg. Co.
Sandy Hill Iron & Brass Works
Shartle Brothers Machine Co.
Sutherland Refiner Corp.
Valley Iron Works

REGULATORS
Apmew, Inc.
Bird Machine Company
General Electric Co.
Improved Machinery Inc.
Johnson Corp.
Poirier Control Company
Shartle Brothers Machine Co.
Taylor Instrument Companies
Westinghouse Electric Corp.

RESINS
American Cyanamid Company, Plastics & Resins Division
Borden Company
The Dow Chemical Company
B. F. Goodrich Chemical Co.
The Goodyear Tire & Rubber Company
Hercules Powder Co.
Monsanto Chemical Company
Naugatuck Chemical Division of U. S. Rubber Co.
Nopco Chemical Co.
Reichhold Chemicals, Inc.

ROLLS
Appleton Machine Co.
The Bagley & Sewall Company
Beloit Iron Works
Black Clawson Company
Dilts Machine Works
Downingtown Mfg. Co.
Frank W. Egan & Co.
Emerson Mfg. Co.
Farrel-Birmingham Co.
Gibbs-Brower Company, Inc.
B. F. Goodrich Co.
Holyoke Machine Co.
Lindsay Wire Weaving Co.
Lobdell United Co.
Manchester Machine Co.
The Moore & White Co.
D. J. Murray Mfg. Co.
Perkins, B. F., & Sons Co.
Pusey & Jones Corp.
J. J. Ross Company
Rice Barton Corporation
Ross Paper Machy. Co.
The Sandy Hill Iron & Brass Works
Shartle Brothers Machine Co.
Smith & Winchester Mfg. Co.
U. S. Rubber Co.
Valley Iron Works Co.
Waldron Corp., John
Wheeler Roll Co.

ROLL COVERS
The Goodyear Tire & Rubber Company

ROLL HANDLING EQUIPMENT
Dilts Machine Works

ROLL STANDS
Cameron Machine Co.
Dilts Machine Works
Frank W. Egan & Co.
Moore & White Co.
The Sandy Hill Iron & Brass Works
John Waldron Corp.
H. G. Weber & Co., Inc.

ROPE CARRIERS
Black Clawson Co.
Downingtown Mfg. Co.
The Moore & White Co.
Rice Barton Corporation
The Sandy Hill Iron & Brass Works

ROTARY KILNS
F. L. Smidth & Co.

ROTARY SCREENS
Bird Machine Company
Chas. Mundt & Sons

ROTARY STEAM JOINTS
Johnson Corp.
The Moore & White Co.
Rice Barton Corporation
Sandy Hill Iron & Brass Works
Shartle Bros. Mch. Co.

RUBBER PRODUCTS
B. F. Goodrich Co.
The Goodyear Tire & Rubber Company

SAMPLE CUTTER
Testing Machines, Inc.
Thwing-Albert Instrument Co.

SATURANTS
B. F. Goodrich Chemical Co.

SATURATING MACHINES
Dilts Machine Works
Frank W. Egan & Co.
Gibbs-Brower Company, Inc.
Moore & White Co.
The Sandy Hill Iron & Brass Works
Shartle Brothers Machine Co.
Waldron Corp., John
Weber, Herman G.

SAVEALLS
Bird Machine Company
Bulkley, Dunton Processes, Inc.
Chicago Bridge & Iron Co.
Improved Paper Machinery Corp.

SAWS
Simonds Saw & Steel Co.

SCALES
Merrick Scale Mfg. Co.
Testing Machines, Inc.

SCREEN PLATES
Bird Machine Company
Fitchburg Screen Plate Co.
Magnus Metal Corp.
Morey Paper Mill Supply Co.
Mundt, Chas. & Sons
Testing Machines, Inc.

SCREENS
Appleton Wire Works
Appleton Machine Company
The Bagley & Sewall Company
Bird Machine Company
Carthage Machine Co.
Dilts Machine Works, Inc.
Downingtown Mfg. Co.
Gibbs-Brower Company, Inc.
E. D. Jones & Sons Co.
Moore & White Co.
Mundt, Chas. & Sons
D. J. Murray Mfg. Co.
J. J. Ross Company
Ross Paper Machy. Co.
The Sandy Hill Iron & Brass Works
Shartle Brothers Machine Co.
Valley Iron Works Co.

SCREENS, CHIP (Vibrating)
Link Belt Co.

SCREENS (Perforated)
Mundt, Chas., & Sons

SCREENS (Rotary)
Bird Machine Company
Mundt Chas., & Sons

SHAKES
Downingtown Mfg. Co.

SHAKE STICKS
Westinghouse Electric Corp.

SHEET MACHINES
Downingtown Mfg. Co.
Gibbs-Brower Company, Inc.
Thomas W. Hall Co.
Hermann Mfg. Co.
Testing Machines, Inc.
Valley Iron Works Co.
Williams Apparatus Co., Inc.

SHOWER PIPES
Bird Machine Company
Black-Clawson Company
Downingtown Mfg. Co.
Emerson Mfg. Co.
Moore & White Co.
Sandy Hill Iron & Brass Works
Sandusky Fdy. & Mch. Co.
Shartle Brothers Machine Co.
Smith & Winchester Mfg. Co.

SHREDDERS
Bauer Brothers Co.
Carthage Machine Co.
Gibbs-Brower Company, Inc.
Jackson & Church Co.
Jeffrey Mfg. Co.

SIZE PRESSES
Black-Clawson Co.
Downingtown Mfg. Co.
Manchester Machine Co.
Rice Barton Corporation
Sandy Hill Iron & Brass Works

SIZING
American Bitumuls & Asphalt Co.
American Cyanamid Company, Industrial Chemicals Division
The Dow Chemical Company
du Pont, E. I., de Nemours & Co.
Flintkote Company
Glidden Company
Hercules Powder Co.
The Hubinger Co.
Monsanto Chemical Company
National Aluminate Corp.
Nopco Chemical Co.
Wyandotte Chemicals Corp., Michigan Alkali Div.

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Carthage Machine Co.
Dietz Machine Works
Dilts Machine Works
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Hamblet Machine Co.
Hudson-Sharp Mch. Co.
Improved Machinery Inc.
Langston Co., Samuel M.
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SOFTNESS-STIFFNESS TESTER
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Jackson & Church Co.
Manchester Machine Co.
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Rice Barton Corporation
The Sandy Hill Iron & Brass Works
Waldron, John, Corp.

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U. S. Steel Corp.

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The Hubinger Co.
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SULPHUR BURNERS
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SULPHUR DIOXIDE
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The Goodyear Tire & Rubber Company
Naugatuck Chemical Division of U. S. Rubber Co.
Nopco Chemical Co.

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TUBING MACHINES
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Arthur E. Gordon, Business Mgr. — Frederick B. Grosse, Production Mgr.

Francis J. Gordon
15 West 47th Street, New York 36, N. Y. Plaza 7-2370

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15 West 47th Street, New York 36, N. Y. Plaza 7-2370

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NEW

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CUTTERS • LAYBOYS and BACKSTANDS

Performance records prove
higher production potentials on

PAPER—PAPERBOARD—PULP—and SPECIALTIES

To measure up to today's faster production pace, our engineers have completely redesigned Moore & White Cutters, Layboys and Backstands. These precision-made machines are now much more efficient and dependable. Special attention has been paid to simplified operation—reduction of maintenance to a minimum.

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These are furnished in three types: simplex, duplex and triplex. They are of multiunit design, hence any of the three types can readily be converted to any of the other types. Changes for sheet adjustment are quickly made. Fast cutting and slitting of both paper and paperboard is done with trade-custom accuracy; the trimming operation can actually be eliminated. Knife adjustment is accurately maintained. These cutters can be equipped with either standard or quick change slitters, single or duplex.

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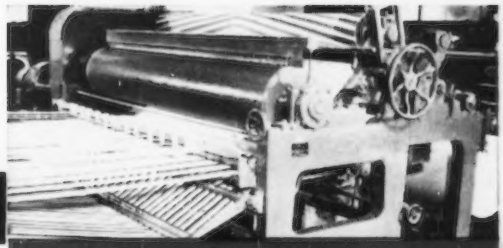
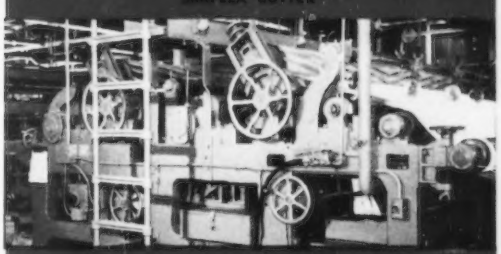
The MOORE & WHITE Company

15TH STREET AND LEHIGH AVENUE • PHILADELPHIA 32, PA.
CUSTOM-BUILT MACHINES FOR MAKERS OF PAPER AND PAPERBOARD



SIMPLEX CUTTER



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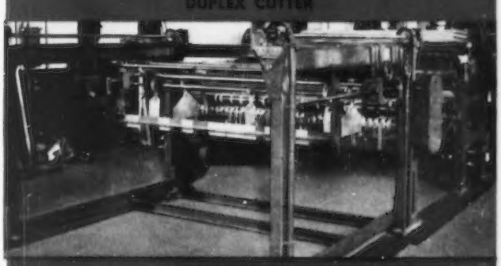

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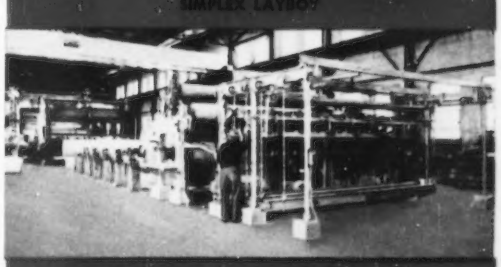

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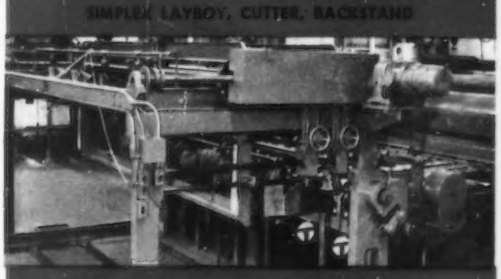
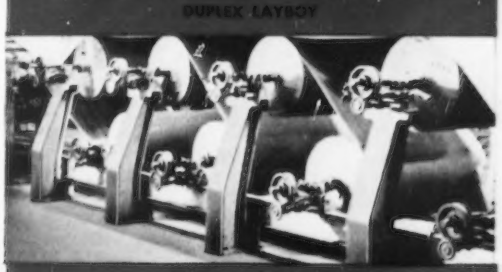


DUPLEX LAYBOY



BACKSTAND

MOISTURE PROTECTION PLUS is imparted to these packages by PLIOLITE NR. Excellent anchorage, heat sealability, crease resistance, chemical resistance and handling characteristics are other advantages gained.

YOU CAN DO IT, TOO

with coatings based on PLIOLITE NR

EACH of the packages shown here presented special problems to the Riegel Paper Corporation—makers of fine packaging materials. How these problems were solved is the story of how Goodyear's cyclized rubber derivative—PLIOLITE NR—can help end your packaging troubles, too.

The problem common to most of these packages was the close control of the passage of water vapor. This requirement was easily met, since coatings made with PLIOLITE NR do an outstanding job of keeping moisture in or out of packages for all types of products.

But there were other problems. One package required fast, positive heat seals. Another—low air permeability. Still another—excellent crease resistance. A fourth needed unusual chemical resistance. And each of these additional requirements was met by one or more of the unique properties of coatings based on PLIOLITE NR.

Moreover, coaters of papers and paper laminates find PLIOLITE NR easy to formulate and use. It applies from a single solvent on conventional coating equipment. It dries rapidly to a film of high gloss, excellent anchorage and good nonblocking properties. And its low density gives more coating per pound of resin.

For more information on how you can solve tough packaging problems with PLIOLITE NR, write to:
Goodyear, Chemical Div., Akron 16, Ohio.

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